DESKTOP CD DUPLICATOR

Inferno

DSR-8880

USER'S MANUAL

HOEI SANGYO CO., LTD.

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Rev3.10

Thank you for your purchase of our Desktop CD Duplicator "CDstation DSR-8880".
Read this user's manual thoroughly to understand the "DSR-8880". Its specifications are subject to change without prior notice due to improvement of its function.

DSR-8880 User's Manual

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Introduction

Instructions for this manual 4

Section.....4

Symbols used in this manual.....4

Advantage s of "The Inferno".....5

Names and functions.....6

Front panel.....6

Operation panel.....7

Rear panel.....8

Instructions for this manual

This section provides instructions for "The Inferno"

Sections

Introduction
Advantages of the machine, options and names of the parts are described.

Section 1: Installing "The Inferno"
Read this sections first. Notes for handling, unpacking, installation location, maintenance and transportation are described.

Section 2: Operating "The Inferno"
How to turn on/off "The Inferno" and its basic operations are described.

Section 3: Panel Settings
How to setup "The Inferno"; and a description of its operation panel.

Section 4: Troubleshooting
Error messages and solutions for malfunctions are described.

Appendix A: Quick Reference
Operations of "The Inferno" are described briefly.

Appendix B: Error Code List

Appendix C: Slave and VMI Installation

Symbols used in the manual

Notes and references are described as:

If the device is handled improperly, it may result in death or serious injury. Be sure to follow all of the warnings for safe operation.

If the device is handled improperly, it may result in injury or damage to property. Be sure to follow all of the cautions for safe operation.

Advantages of "The Inferno"

1. General

"The Inferno" is a system to create backup data to CD (Compact Disc) accurately and quickly. A CPU is installed in "The Inferno" and it works as a stand-alone device. A CD-ROM reader is installed as a master read drive. A maximum of ten CD-R writers can be installed as writer drives.

2. Advantages

- **Easy operation**

You need only to insert a CD-R and press the Start/Stop button. Most formats are processed by using the automatic function (AUTO).

*CD-EXTRA format must be set manually. Refer to "Changing master format" (page 41) for details.

- **DISC AT ONCE compatible**

A TRACK AT ONCE master disc can be converted (CONVERSION) to a DISC AT ONCE disc and written to a CD-R.

- **PAUSE measuring**

The PAUSE between the CD-DA tracks (GAP between the tracks) is measured.
When the master data is analyzed, the GAP between the tracks (INDEX 0-1) is measured by using the PAUSE function. The results are used for the DISC AT ONCE TOC data.

- **INDEX FILTER mode**

The Index Filter is used for processing a master CD-DA disk that has errors at the beginning of the first track or between tracks. By selecting 'YES' this function analyzes the CD-DA data and deletes noise between tracks.
***The analysis of CD-DA data is executed and pre-set at two seconds per track.**

- **TRACK EXTRACTION mode**

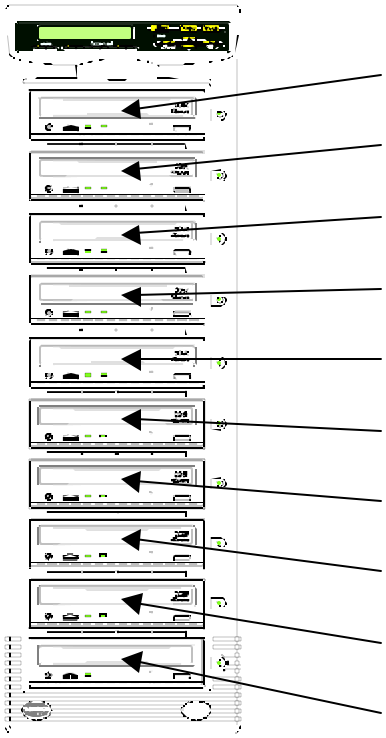
The Track Extraction is used to create an original digital audio disc by copying selected tracks from master CD-DAs.

With the hard drive it is possible to write in the DISC AT ONCE mode.
Refer to "Operations of Track Extraction" (page 31) for details.

Names and Functions

Front panel

Names and functions are as follows:



Operation panel: The LCD (liquid crystal display) to show the status of "The Inferno" (Refer to the next page).

Drive A: CD-R writer has been installed. Drive A LED: The status of the drive A is shown (See below).

Drive B: CD-R writer has been installed. Drive B LED: The status of the drive B is shown (See below).

Drive C: CD-R writer has been installed. Drive C LED: The status of the drive C is shown (See below).

Drive D: CD-R writer has been installed. Drive D LED: The status of the drive D is shown (See below).

Drive E: CD-R writer has been installed. Drive E LED: The status of the drive E is shown (See below).

Drive F: CD-R writer has been installed. Drive F LED: The status of the drive F is shown (See below).

Drive G: CD-R writer has been installed. Drive G LED: The status of the drive G is shown (See below).

Drive H: CD-R writer has been installed. Drive H LED: The status of the drive H is shown (See below).

Drive I: CD-R writer has been installed. Drive I LED: The status of the drive I is shown. (See below).

Drive J: CD-R writer has been installed. Drive J LED: The status of the drive J is shown. (See below).

Master CD-ROM reader: When the CD-ROM reader is internal this would be the master read-in drive (Reader may be external when recorder installed).

Drive/LED: The status of the Master Read Drive is shown (See below).

*LED indicators

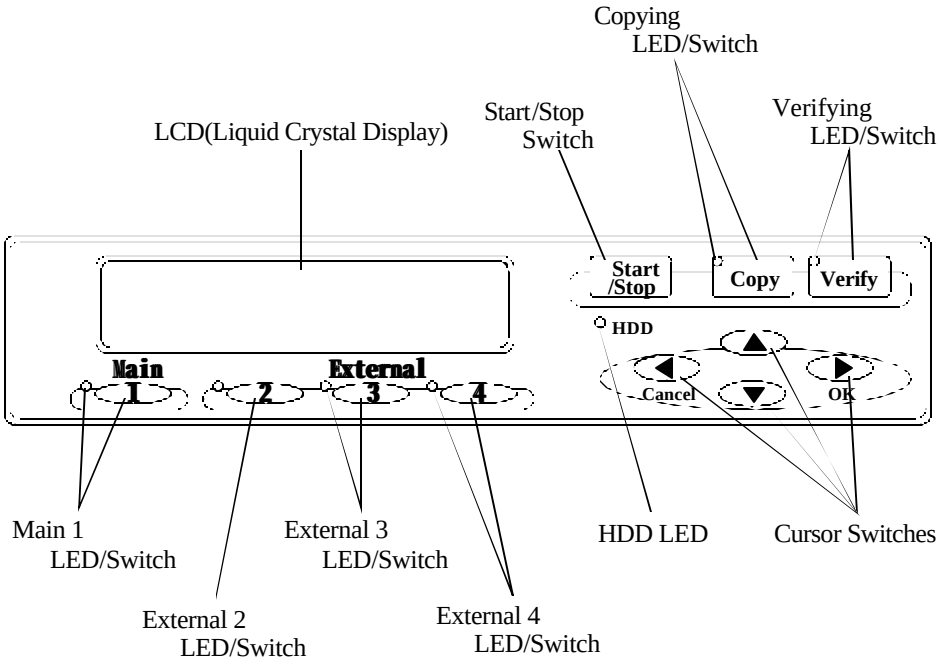
OFF……Media is not inserted or a media is being acknowledged.

ON……Media is inserted and the drive is ready to record.

Flashing slowly…… A process is being executed.

Flashing quickly……An error has occurred.

Operation Panel

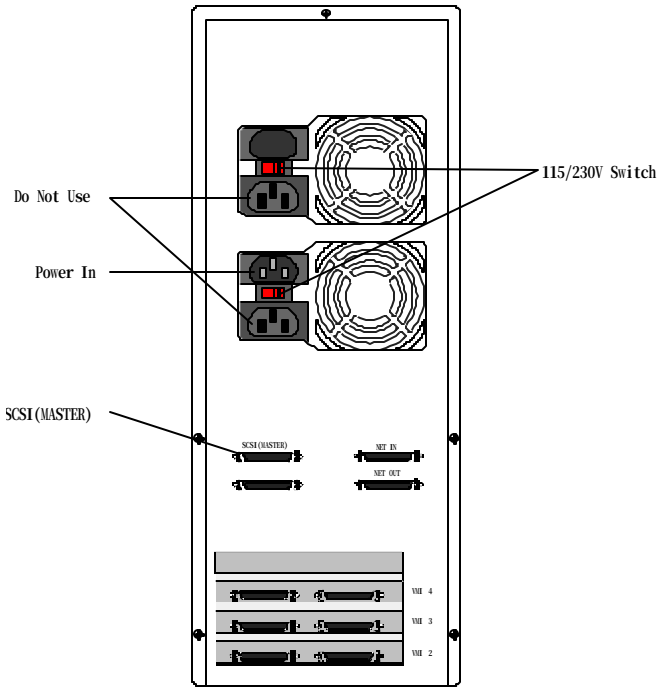


LCD (Liquid crystal display): Displays of "The Inferno" status/messages.

Start/Stop switch/LED:	Selected processes will be executed by pressing the switch.
Copying switch:	Used to select or deselect the copy process.
Copying LED:	Lights up when the copy process is selected.
Verifying switch:	Used to select or deselect the verify process.
Verifying LED:	Lights up when the verify process is selected.
HDD LED:	If the HDD is loaded, this light indicates the operation of the HDD.
Cursor switches:	Used for selecting and setting the functions of the control panel.
Main 1 switch:	Used to show the status messages of the drives in the Main tower.
Main 1 LED:	Lights up when the Main 1 is selected, and flashes when an error occurs.
External 2 switch:	Used to show status messages of the External tower 2 (optional unit).
External 2 LED :	Lights up when the External tower 2 is selected and flashes when an error occurs.
External 3 switch:	Used to show status messages of the External tower 3 (optional unit).
External 3 LED :	Lights up when the External tower 3 is selected and flashes when an error occurs.
External 4 switch:	Used to show status messages of the External tower 4 (optional unit).
External 4 LED:	Lights up when the External tower 4 is selected and flashes when an error occurs.

Refer to the "Operation Panel" section (page 16) for details.

Rear Panel



SCSI (MASTER): External reader connection (when the reader not installed internal).
Power In: AC power in socket.
115/230V Switch: Switch for changing the input voltages (AC115/230).

Be sure to use a tool such as a screwdriver to change the 115/230V Switch.

Section 1

Installing “The Inferno”

Notes for handling **10**

Power supply 10

Electrical Grounding 10

Moving 11

Installation Requirements 11

Installation space 12

Unpacking **13**

What comes with “The Inferno” 13

Maintenance **14**

Transportation **14**

Notes for handling

Handle "The Inferno" in accordance with the following notes:

Since a semi-conductor laser is used in this product, it should be handled carefully.
Be sure to follow the procedures specified in this manual when handling the drive unit of the product. Failure to follow these warnings may result in injury.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Laser Diode Properties
Material: GaAlAs
Wavelength: 780-790 nm
Emission Duration: Continuous
Laser Output Power: Less than 44.6W*
* This output is value measured at a distance of 200mm from the objective lens surface on the optical pick-up block.
ANSI Class: Class 1

Power supply

- Use house current as the power source for the unit.
- Do not use an outlet near a motor driven appliance (i.e. air conditioner, copying machine).
- Use an outlet with stable power supply voltages.
- Do not overload an outlet. Do not use a service outlet from a PCs or other office machine.
- Wire the power cord properly.
- Do not touch the power cord with a wet hand.
- Be careful not to damage the power cord.

Inspect the power cord periodically.
In the event that the power cord is damaged, replace the power cord.

Be sure to use a tool such as the screwdriver to change the 115/230V Switch.
Do not use your finger.

Electrical Grounding

- Be sure to properly ground "The Inferno" to prevent an accidental electrocution.
- For proper electrical grounding, use a 3P outlet or an Electrical Grounding cord with a 3P-2P connector.

Moving

"The Inferno" weights about 25kg. Move it very carefully.

Installation Requirements

Install "The Inferno" in the following conditions:

- On a level and stable surface
- In a well ventilated location
- Temperature and humidity

  Temperature: 5-40°

  Humidity: 20-80%RH (no dew formation)

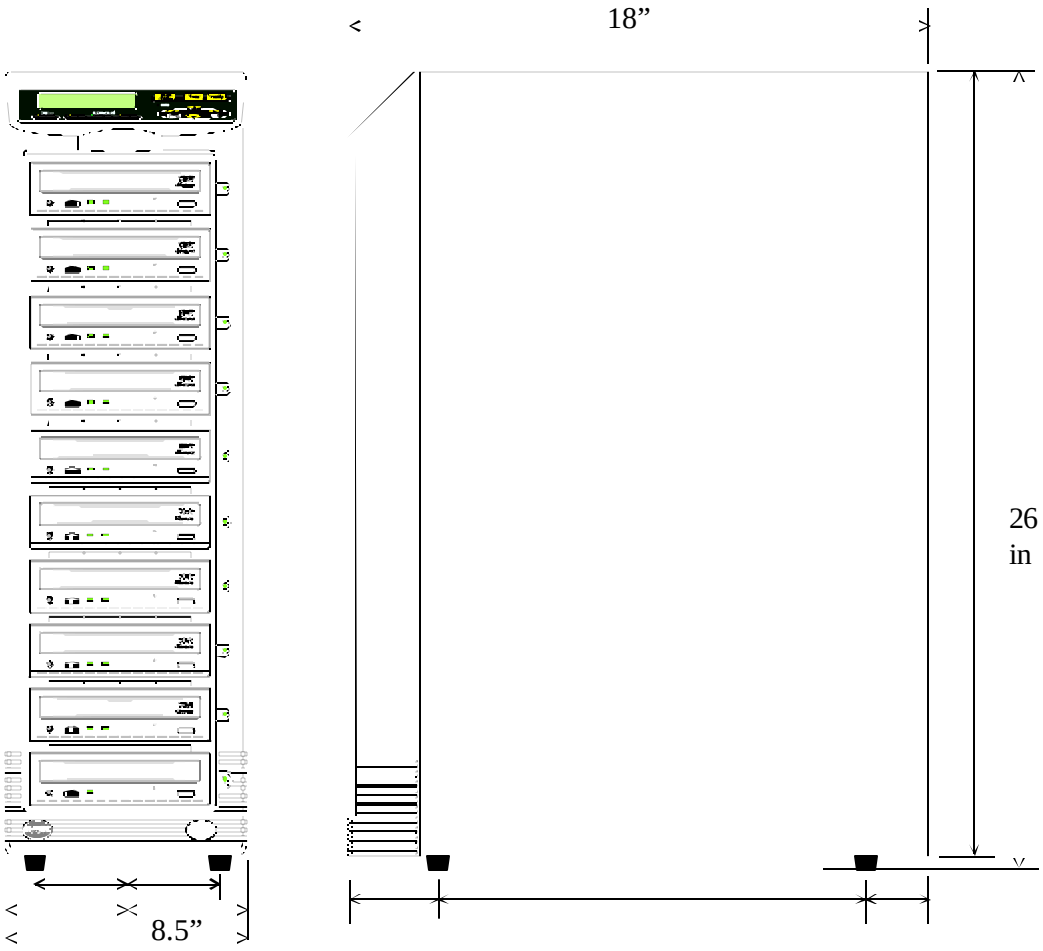
Do not install it in the following places:

- Under direct sunlight (If the machine is exposed to sunlight, the light should be blocked by a curtain or blind.)
- A dusty location
- A place where there is a lot of vibration
- Near open flame
- A place where the temperature and humidity change drastically
- Near a heating device such as a heater or furnace
- A location where air from an air conditioner blows directly onto the unit
- Near a container filled with water such as a vase

In winter during times of low humidity or in a location where static electricity is generated, use an anti-static-electricity mat or humidifier to prevent static electricity.

Installation space

The dimensions of “The Inferno” are as follows:



Do not place anything within at least 2in. (5cm) of “The Inferno”. Clear all items within 8in. (20cm) behind “THE INFERNO”. Securely place all of the rubber legs of “The Inferno” on the desk or table.

Notes for using

- Do not hit the unit against anything, or with anything
- Do not insert foreign materials (e.g., metal chips, chemicals) in the drives.
- Do not remove the cover or turn off the power while a process is being executed.
- If a malfunction occurs during the process, refer to “Troubleshooting” (page 57).
- Clean “The Inferno” in accordance with “Maintenance” (page 14).

Unpacking

What comes with "The Inferno"

Make sure that the following items are included in the package and there is no damage on the "THE INFERNO" and accessories.

	Part Name	*Part No.*	*Qty*
1	"THE INFERNO"	"THE INFERNO"-MX	1
2	Power cable		1
3	Instruction manual	DSR/L-UM-8880E	1

External Reader included for systems where all bays are loaded with recorders

	Part Name	*Part No.*	*Qty*
1	External Reader Drive	External Reader Drive	1
2	Master SCSI Cable		1
3	Terminator		1

If anything is missing, please contact the location where you purchased "The Inferno".

Maintenance

Cleaning

Before cleaning "The Inferno", turn off all power and remove the power cord from the socket.

Remove dust on the housing carefully using a soft brush.

If it is very dirty, wipe it with a soft cloth after soaking the cloth in water including a small amount of neutral detergent and squeezing excess moisture from the cloth.

Do not use volatile chemicals such as benzene, thinner and alcohol.
If they are used the surface of the housing might be damaged.
Keep the inside of "The Inferno" dry.
Do not use a bristle brush and/or a stiff cloth.

Transportation

If "The Inferno" is to be transported, re-pack it properly to protect it from shocks during transportation.

Prepare the originalpacking materials and box that the "The Inferno" came in.

Switch "The Inferno" off.

Remove the interface cable and power cord.

If tray protection materials were used in the drives replace them before re-packing, place them in the drives.

Place the packing materials on "The Inferno". Put "The Inferno" in the box.

Section 2

Operating “The Inferno”

Operation panel **16**

LCD (Liquid crystal display) 16

LED’s 16

Button operations 18

Turning on/off the power **19**

Turning on the power 19

Turning off the power 20

Basic operations **21**

Basic screens 21

Copy 23

Verify 24

Copy and Verify 26

Registering master data in HDD 28

Errors During Process 30

Operations for Track Extraction **31**

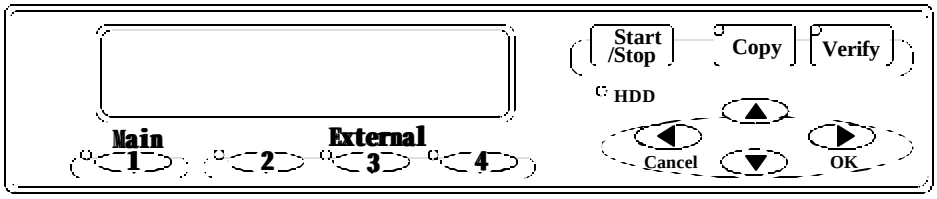
Basic screens 31

Copy 34

Registering master data in HDD 37

Errors During Process 39

"The Inferno" operates via the buttons on the operation panel. The LCD and LED's indicate the status of the DSR.



Refer to "Names and Functions of Devices" (Introduction 4) for details.

LCD (Liquid crystal display)

The LCD shows the status of "The Inferno" and the current operation mode.
Up to 40 characters (20 characters x 2 lines) are shown on the LCD.

LED

Copy LED (red)
The LED indicates the following status.
ON: The copy process is selected.
OFF: The copy process is not selected.

Verify LED (red)
The LED indicates the following status.
ON: The verify process is selected.
OFF: The verify process is not selected.

> When the copy LED and the verify LED are off, the data is sent to the hard drive (option).

HDD LED (yellow)
The LED indicates the following status when a hard drive (optional) is loaded.
ON: The master data has been loaded on the hard drive.
OFF: The master data is not loaded on the hard drive.
Flashing: The master data is being loaded on the hard drive.

Main tower LED (green)

The LED indicates the following status.

ON: Process information of each drive in the Main tower is shown on the LCD.

OFF: The Main tower is not selected.

Flashing: An error has occurred in the Main tower.

External tower 2, 3, and 4 LED (green) (NOT APPLICABLE)

The LED indicates the status if additional slave tower(s) (optional) are installed.

ON: Process information of each drive in the slave tower corresponding to the LED is displayed.

OFF: The unit corresponding to the LED is not selected.

Flashing: An error has occurred in the unit corresponding to the flashing LED.

> The LED's of the Main tower and the External tower(s) 2, 3, and 4 continue flashing (indicating an error) until the CD with the error is removed. Refer to "Error during process" (page 30).

Buttons

Copy button

The Copy operation is selected or de-selected by pressing the Copy button, before starting the copy or verify process.
(Having selected the process, the Copy LED is turned on.)

Verify button

The Verify operation is selected or de-selected by pressing the Verify button, before starting the copy or verify process.
(After selecting the process, the Verify LED is turned on.)

Start/Stop button

Start the copy and/or verify process by pressing the Start/Stop button.
To stop the process during the copy and/or verify operation, press the Start/Stop button for about 5 seconds.

> The copy process can be stopped during the copy process.
> However the target disc (the CD-R to which the data is being written) will be not be useable, because the copy process has not been completed properly.

Main tower and External 2, 3, and 4 buttons

If the copy or verify process is not being executed, the number of discs processed to this point for any given job will be displayed on the LCD by pressing the Main button.
While the copy or verify process is being executed, the process information or processing status of each unit is shown on the LCD by pressing the main button.

> To go back to the previous screen, press the Main tower button several times or press the “Cancel” button.

Cursor buttons

The cursor indicators (◀ ▶ ◆) are shown on the LCD correspond to the command or function each button will produce.

Turning on/off the power

Caution

Check the connections again before turning on "The Inferno"

Turning on the power

1) Press the power button at the lower right corner on "The Inferno"

2) All LED's on the operation panel will light up.

3) The controller will check the status of "The Inferno" and the display will read

```
Now Checking...
```

4) The software version of the "THE INFERNO" will be shown after the status check has completed.

```
HOEI PRECISION
DSR-8000 Ver **.**
```

. corresponds to the number displayed.

5) A short time after the power is turned on, the following screens will appear on the LCD. They are the Main screens of the "The Inferno". The process settings and the master data format changes can then be made from them.

```
FMT:AUTO▲▼          ▶MENU
```

```
FMT:AUTO▲▼
Press Start to COPY
```

❖ They will alternate on the LCD.

Refer to "Panel settings" (page 41) for details.

If the power has not been turned on properly, refer to "Error message" (page 58) or "Troubleshooting" (page 57).

Turning off the power

1) Make sure that the copy or verify process has been completed by "The Inferno"

2) Make sure that the HDD LED is not flashing.

3) Turn off the power.

- ✓ If you want to turn the power on again after turning it off, it required you wait 5 seconds before turning in on again.
- ✓ Do not turn the power off while the hard drive is processing.
  In the event that the power is turned off, follow the steps of "HDD FORMAT" (page 54) to make sure that no damage has been caused to the hard drive.
- ✓ Do not turn off the power while a panel setting is being stored.
  The setting might be lost.

Basic Operation

The following are basic operations of "The Inferno".

Basic Screens

Basic screens on "The Inferno" LCD are as follows:

1) Main screen (refer page 16 for details). The following screens will alternate on the display.

FMT : AUTO ▲▼ : FMT indicates the format type of the master data. AUTO has been selected as a default setting. The format type can be changed by using the up/down cursor button.
Refer to "Changing master format" (page 41).

▶MENU : If the right cursor button is pressed, the Menu Setting screen will appear on the LCD.
Refer to "Changing process mode" (page 43) for details.

Press start to begin the selected (Copy, Verify or Copy + Verify) process.

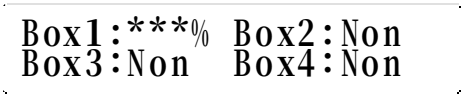
2) Ongoing Process Screens

There are two screens showing the process that is being executed.

1. The status of the process including the status of the optional slave units are shown.
2. The process status for each unit is shown.

The screen showing the status of each unit is changed by using the 1 Main tower button on the operation panel and 2, 3, or 4 buttons. Refer to "Buttons" (page 18) for details.

1) The status screen



Box 1: ***% : The percentage (%) shows how far the process has completed for the Main tower ("THE INFERNO").

Box 2~4: Non : Indicates the External 2-4 (optional slave cards) are not connected.

2) The screen showing the status of each unit.

COPY : The current process (copy) is shown.

***MB : The capacity of the master data is shown.

■□□ : How far the process has been completed is shown by the bar graph.

79% (example) : The process has been completed by 79%.

3) Process Completed screens

Like the Ongoing Process screens, there are two Process Completed screens: (1) The screen showing the status of each tower (2) The screen showing the status of the unit. The screens are buttoned over by using the buttons on the operation panel (Main tower). Refer to "Buttons" (page 18) for details.

1) The screen showing the tower status.

Status

PASS : The process has been completed properly.
After it is shown for a certain time, the Main screen will appear.

Fail : An error has occurred on one or more recorder drives. Refer to "Error during process" (page 30) for details.

2) The screen showing the status of each unit

The number of the discs completed is displayed for each unit.
The number of the discs improperly processed is also shown.

Copy

This display is seen for the copy mode.

1. If "The Inferno" is turned on, the following main screen will appear after a while.

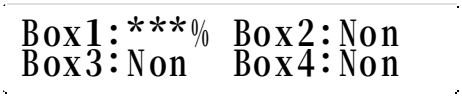
The above screens alternate on the display.

> If the Main tower button on the operation panel is pressed, the status of each drive will be shown (press the button several times). To go back to the main screen, keep pressing the Main tower button until the status of the last drive is shown or press the left cursor button to return to the main screen.

2. Insert the master CD and the target CD. Make sure that each status LED corresponding to the drive with the medium inside is on, indicating the drive has found the media. Since the default of "The Inferno" has been set to copy, pressing the Start/Stop button will start the copy process.

> The process will start and the display LED will indicate the status of each drive.

3. The following screen is shown while processing.



> If the Main tower button on the operation panel is pressed, the process that is being executed in the main unit ("THE INFERNO") will be displayed. To go back to the main screen, press the Main tower button again or the left cursor button.

4. If the copy process is properly completed, the media will be automatically ejected and the status LED will be off.

> If the Main tower button on the operation panel is pressed in this situation, the status of each drive will be displayed (press the button several times). To go back to the main screen, keep pressing the Main tower button until the status of the last drive is shown or press the left cursor button.

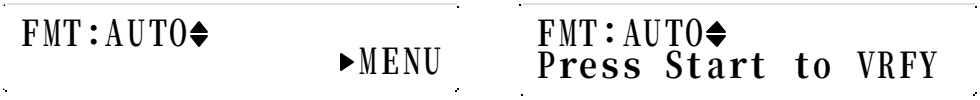
- Please use target discs which have the same capacity and are from the same manufacture.
- Please make sure that the drive status LED is lit (Ready) before you press the start button, otherwise drives whose LED is not lit (Not Ready) are not processed.
- AUTO (automatic format identification) is limited to specific formats.
  Refer to "Changing master format" (page 41) for details

If an error occurs, refer to "Error during process" (page 30) for details.

Verify

This display is seen for the verify mode.

1. If "The Inferno" is turned on, the following main screen will be displayed.



The above screens alternate on the display.

Since the default of "The Inferno" has been set to verify, press the copy button to cancel the selection and press the verify button to select the verify process.
The following screen will appear

The above screens alternate on the display.

> If the Main tower button on the operation panel is pressed in this situation, the status of each drive will be displayed (press the button several times). To go back to the main screen, keep pressing the Main tower button until the status of the last drive is shown or press the left cursor button.

3. Insert the master CD and the target CD. Make sure that each drive status LED corresponding to the drive with the medium inside is on. Since the default of "The Inferno" has been set to copy, pressing the Start/Stop button will start the copy process.

> The process will start and the display LED will indicate the status of each drive.

4. The following screen is shown while processing.

> If the Main tower button on the operation panel is pressed, the process that is being executed in the main unit ("THE INFERNO") will be displayed To go back to the main screen, press the Main tower button again or the left cursor button.

5. If the verify process is properly completed, the media will be automatically ejected and the status LED will be off.

> If the Main tower button on the operation panel is pressed in this situation, the status of each drive will be displayed (press the button several times). To go back to the main screen, keep pressing the Main tower button until the status of the last drive is shown or press the left cursor button.

- Please make sure that the status LED is lit (Ready) before you press the start button, otherwise drives whose LED is not lit (Not Ready) are not processed.
- AUTO (automatic identification) for formats is limited to specific formats. Refer to "Changing master format" (page 41) for details
- If an error occurs, refer to "Error during process" (page 30) for details.

Copy and verify

This display is seen for the copy and verify mode.
If "The Inferno" is turned on, the following main screen will appear after a while.

The above screens alternate on the display.

Since the default of "The Inferno" has been set to verify, press the verify button to select the verify process. The following screen will appear.

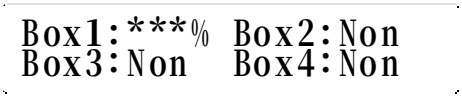
The above screens alternate on the display.

> If the box 1 button is pressed in this situation, the status of each drive will be shown (press the button several times). To go back to the main screen, keep pressing the box 1 button until the status of the last drive is shown or press the left cursor button.

Insert the masterCD and the target CD. Make sure that every status LED corresponding to the drive with the medium set inside is on. Since the default of "The Inferno" has been set to copy, it will be started by pressing the Start/Stop button.

> The process will start and the display LED will indicate the status of each drive.

The following screen is shown while processing.



> If the Main tower button on the operation panel is pressed, the process that is being executed in the main unit ("THE INFERNO") will be displayed To go back to the main screen, press the Main tower button again or the left cursor button.

If the copy and verify process is properly completed, the media will be automatically ejected and the status LED will be off.

> If the Main tower button on the operation panel is pressed in this situation, the status of each drive will be displayed (press the button several times). To go back to the main screen, keep pressing the Main tower button until the status of the last drive is shown or press the left cursor button.

- Please use target discs whose capacity and manufacture are the same.
- Please make sure that the status LED is lit (Ready) before you press the start button, otherwise drives whose LED is not lit (Not Ready) are not processed.
- AUTO (automatic identification) for formats is limited to specific formats. Refer to "Changing master format" (page 41) for details
- If an error occurs, refer to "Error during process" (page 30) for details.

Registering master data in HDD

Registering the master directly into the HDD

Turn on "The Inferno"

Set "HDD REGISTRY" (process mode setting) to "YES". Refer to "Changing process mode" for details (page 63).

Press the Copy key to cancel the selection. The following screens will appear.

The screens will alternate on the display.

4. Insert the master disc. Make sure that the status LED for the drive where the disc has been inserted is lit and press the Start/Stop button. The HDD registration process will be started.

5. While the process is being executed, the following screen is shown. The HDD LED on the operation panel will flash.

*** Indicates the capacity of the master data.
79% indicates the process has been completed by 79%.

6. After the HDD registration process is properly completed, the master disc will be ejected automatically. The status LED will be turned off and the HDD LED on the operation panel will light up.

Registering the master data while executing the process

(Copy, Verify or Copy + Verify)

- Turn on "The Inferno".
- Set "HDD REGISTRY" (process mode setting) to "YES". Refer to "Changing process mode" for details (page 43).
- Operate the machine in the same way as the way for processing data.
  The HDD LED on the operation panel flashes while the data is being registered in the HDD.
- After the HDD registration is properly completed, the master disc and target disc will be ejectedautomatically. The status LED will be turned off and the HDD LED on the operation panel will light up.

> If the master data has been registered in the HDD, the maser disc is not needed for the process (Copy, Verify or Copy + Verify) after the registration.
> The HDD registration will not be lost, even if "The Inferno" is turned off.
> To cancel the HDD registration, set the "MST" (process mode setting) to any setting other than "HDD". Refer to "Changing process mode" for details (page 43).

Error during process

Indicators when copy or verify

If an error occurs, the box LED on the operation panel flashes to indicate the drive where an error has occurred.
The status LED for the drive where and error occurs will flash quickly. The processes in the other drives (without errors) will be execute normally.

Indicators after the copy or verify process

After the process is completed properly, the medium will be automatically ejected.
The disc in the drive where and error occurs will not be ejected.
The LED for the drive with error flashes quickly.

Checking the error status

When an error occurs, the LED for the error unit on the operation panel flashes.
If the button for the Box indicated by flashing is pressed, the error status of the drive is shown on the liquid crystal display.

Clearing the error indictor

To clear the error indicator, remove the error disc from the drive. To remove the disc, press the EJECT button on the drive.

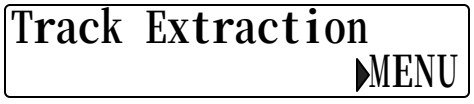
The next process will not be executed until the error is cleared.
Refer to “Error messages” (page 58) for details.

Operations for Track Extraction

The following are basic operations of "The Inferno".
The Track Extraction "TrExtr" mode will appear and is selected in "System Mode" in the system mode setting menu.
Refer to "Description of the system mode settings" (page 54) for details.

Basic screens

Basic screens of Track Extraction on "The Inferno" LCD are as follows:
Main screen



▶MENU If the right cursor button is pressed, the Process Setting screen will appear on the LCD.
Refer to "Changing process mode" (page 43) for details.

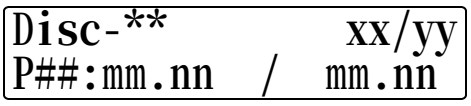
Press start to COPY: The process (Copy, Verify or Copy + Verify) currently selected is shown.

Ongoing Process screens
There are three screens showing the process that is being executed.

1. The screen shows the graph & the percentage of the process being executed during the Master read.
2. The screen shows status of the process including the status of the optional unit slave tower during the mastering to HDD.
3. The screen shows the status of the process for each unit including the status of the optional unit during the mastering to HDD.

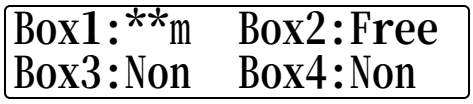
The screen showing the status of each unit is selected over by using the Main tower button on the operation panel ("THE INFERNO") and External 2-4 buttons. Refer to "Buttons" (page 18) for details.

The screen shows the following information while the master CD is being used.



** The master CD currently being executed is displayed
xx/yy The number of tracks selected from the master CD being executed is shown in yy, the number of track being executed currently is shown in xx.
The number of track currently being executed out of the total number of tracks that have been executed is shown.
mm.nn How far the track is in the process is shown as mm, the track time is shown as mm.nn.

The screen showing the status during the mastering to HDD.



Box1:**m The minute (m) shows how far the process has been completed on the Main tower ("THE INFERNO").

When an error occurs, the "Box #" on the screen indicates "Fail".

The screen showing the status of each unit during the mastering to HDD.

** The track number being executed is shown on **.

mm.ss How far the process of the track being executed has been completed is displayed here in minutes and seconds.

MM.SS How far the entire process has been completed is displayed here in minutes and seconds.

When an error occurs, the error message and the drive number where the error occurred is shown on the screen.

Process Completed screens

Like the Ongoing Process screens, there are two Process Completed screens:

1. The screen showing the status comprehensively.
2. The screen showing the status of each unit.

The screens are buttoned over by using the buttons on the operation panel (Main tower).
The screen showing the process having been completed comprehensively is not shown except the process has been completed properly with the master HDD.

The screen showing the status comprehensively.

Pass The process has been completed properly.

Fail An error has occurred. Refer to "Error during process" (page 39) for details.

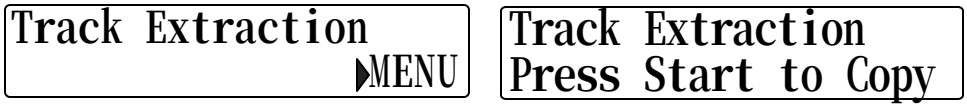
The screen showing the status of each unit.

*	The number of unit being selected is shown.
xxx	The total of the discs properly processed by the master is shown.
yyy	The sum of the discs processed which had an error in the master is shown.

During this screen, the number of the discs properly processed and the number of the discs improperly processed for each drive is also shown by using the button in the selection of screens.

Copy

This mode is used only for copy. If "The Inferno" is turned on, the following main screen of Track Extraction will appear after a while. If these screens will not appear, but the normal main screen appears, go to "system mode setting" and change to "TrExtr" in the SYSTEM MODE.
Refer to "Changing system mode" (page 52) for details.



The above screens alternate on the display.

> If the Main tower button on the operation panel is pressed in this situation, the status of each drive will be shown (press the button several times). To go back to the main screen, press the left cursor (ESC) button.

Process of On the Fly

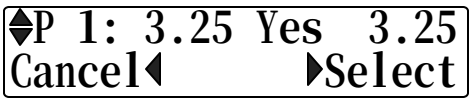
An On-the-Fly CD can be created by selecting tracks from multiple master discs.
For this process, the Write Type has to be set the Track At Once mode.
Refer to "Changing process mode" (page 43) for details.

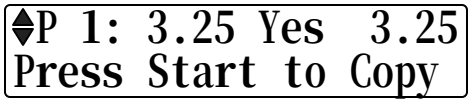
1. Insert the masterCD and the target CD. Make sure that every status LED corresponding to the drive with the medium set inside is on. Since the default of "The Inferno" has been set to copy, pressing the Start/Stop button will start copy.

> The process can be started on the status screen of each drive. In this situation, the selection of the status screen of each drive is canceled, the system screen automatically appears.

2. After the master drive and the target drive are confirmed as ready, the following screen is shown. This screen is used to indicate the system to analyze the master disc currently inserted. To start analyzing, press the right cursor button.
In the following screen, "Disc-1" indicates the first disc and "0.00" indicates the disc has been reading for 0 minutes 00 seconds.

3. After the analysis completes, the following screens alternate on the display. From the upper left side, "The number of track appeared currently", "The play time of the track appeared currently", "The selection status" and "The total time so far" are shown in the screen.
Change the track you wish by using the up & down cursor buttons, press the right cursor (Select) button to select. To cancel the track once selected, press the right cursor button again during the track appears in the screen.
After the selection process completed, press the Start/Stop button to start copy.
To stop the copy process, press the left cursor (Cancel) button in this screen. The process is canceled and the 2.screen will be appeared.

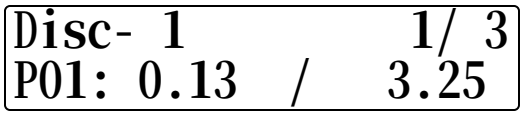




If the total process time is over 74 minutes or the number of track is over 99 tracks, the selection cannot be processed beyond that point. In this situation, "***" is shown in "The selection status" on the screen.

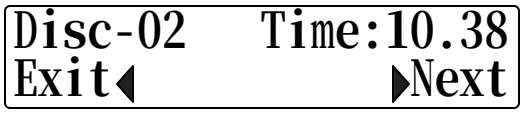
Unlike the program selection of the ordinary Audio player, the order of process is NOT the selected order, but the track number order.

4. After the process is started by pressing the Start/Stop button, the following screen appears.
The number of the master disc being executed is shown in the upper left side and the number of track being executed currently out of the selected tracks from the master disc is shown in the upper right side.
The unique number for tracks having been processed so far is shown in the lower left side and the time of the track how far having been processed and the total time having been processed so far are shown in the lower right side of the screen.



During this screen, the screen cannot be changed by using the Main tower and the External 2-4 buttons.

5. The master disc is automatically ejected after the process of the master disc finishes.
The following screen shows ready for the next master disc. If the next master disc is processed, Insert the master disc and press the right cursor (Next) button. The 3.screen will appear, press the Start/Stop button after the selection process.
If the process finishes with the current master disc, press the left cursor (Exit) button.



6. If the left cursor button (Exit) is pressed on the above screen, the following screen appear.
To finish the process, press the right cursor button (OK).
To go back to the main screen of Track Extraction (page 31), press the left cursor button (Cancel).

The process of the target drives also finishes by selecting “OK”. The discs completed properly will be automatically ejected and the target drives occurring an error will flash the LED of drive.

The details of an error for each drive can be appeared by pressing the Main tower button. The main screen will be appeared after removing all error by reloading discs occurring an error.

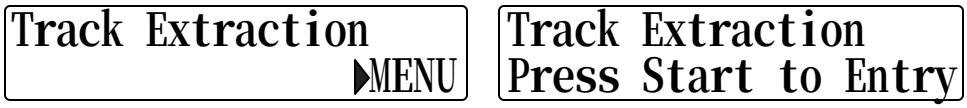
Registering master data in HDD

Registering master only in the HDD

Turn on "The Inferno"

Set "HDD REGISTRY" (process mode setting) to "YES". Refer to "Changing process mode" for details (page 43).

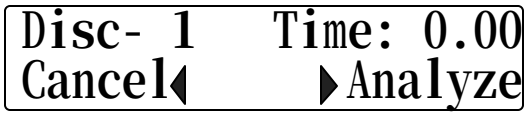
Press the Copy key to cancel the selection. The following screens will appear.



The screens will alternate on the display.

4. Insert the master disc. Make sure that the status LED for the drive where the disc has been set is lit and press the Start/Stop button. The HDD registration process will be started.

5. While the process is being executed, the following screen is shown. The HDD LED on the operation panel will flash. The operation process is like to the On-the-Fly process. Refer to "Process of On-the-Fly " (from page 34).



6. The status LED will be turned off and the HDD LED on the operation panel will light up.

Registering the master data while executing the process

Turn on "The Inferno".

Set "HDD REGISTRY" (process mode setting) to "YES". Refer to "Changing process mode" for details (page 43).

Operate the machine in the same way as the way for the On-the-Fly process.
The HDD LED on the operation panel flashes while the data is being registered in the HDD.

After the HDD registration is properly completed, the master disc and target disc will be ejected automatically. The status LED will be turned off and the HDD LED on the operation panel will light up.

> If the master data has been registered in the HDD, the maser disc is not needed for the process after the registration.
> The HDD registration will not be canceled, even if "The Inferno" is turned off.
> To cancel the HDD registration, set the "MST" (process mode setting) to any setting other than "HDD". Refer to "Changing process mode" for details (page 43).

Error during process

Indicators when copy

If an error occurs, the box LED (Main1) flashes to indicate where an error occurs.
The status LED for the drive where and error occurs also flashes quickly. The processes in the other drives (without errors) will be executed.

Indicators after the copy

After the process is completed properly, the medium will be automa tically ejected.
The disc in the drive where and error occurs will not be ejected automatically.
The LED for the failed drive flashes quickly. If the Box button for the error unit is pressed (selected), beeps will sound.

Checking the error status

When an error occurs, the LED for the error unit on the operation panel (Main tower) flashes. If the button for the Box indicated by flashing is pressed, the error status of each drive is shown on the liquid crystal display.

Clearing the erro r indictor

To clear the error indicator, remove the error disc from the drive. To remove the disc, press the EJECT button on the drive.

Next process will not be executed until the error indicator is cleared.
Refer to “Error messages” (page 58) for details.

Section 3

Panel settings

Changing master format type **41**

Master format 41

Formats 41

Setting 42

Changing process mode **43**

Process mode 43

Going to “process mode setting” 43

Setting flowchart 44

Exiting from “process mode settings” 44

Setting examples 45

Descriptions of process mode settings 46

Changing system mode **52**

System mode 52

Going to “system mode setting” 52

Setting flowchart 52

Setting examples 55

Descriptions of system mode settings 54

Panel Settings

The following descriptions are based on the factory settings. If the user has changed a panel setting, different indicators will appear.

Changing master format

Master format

When the copying or verifying process is executed in the DSR-8880, the master data is analyzed and a format is set automatically (if "AUTO" is selected for the format setting).

Some formats cannot be analyzed. They should be set manually. (See below)

Formats

The following formats are used for the DSR-8880.

Yes: Supported, **No**: Not Supported

Setting	Formats	COPY	VERIFY
AUTO	CD-ROM (mode1, mode2)	Yes	Yes
	CD-DA	Yes	No
	CD-ROM XA(form1,form2)	Yes	Yes
	CD-I (form1, form2)	Yes	Yes
	MIXED	Yes	No
	Multi-Session	Yes	Yes
CD-EXTRA	CD-EXTRA	Yes	No

Additional Functions

Additional function "ISO Conv" converts ISO9660 Multi-Session (Track at Once) into Single-session (Disc at Once)

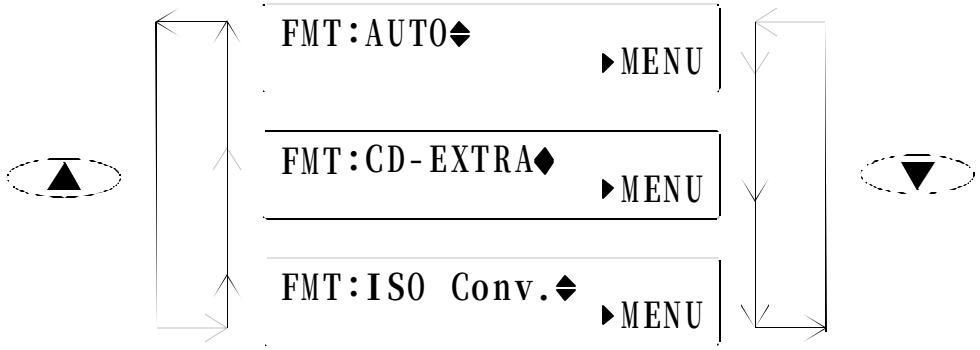
Setting	Formats	COPY	VERIFY
ISO Conv.	ISO9660 Multi-Session	Yes	Yes

If a different type format from that of the master data (CD) is selected for copying or verifying, the process might not be executed properly.

Settings

Select and set the format on the main screen of the DSR-8880 by using the cursor switches on the operation panel.

Format change flowchart:



If the format is changed, the history up to the last process (such as the number of processed discs) will be cleared.

Changing process mode

Process modes

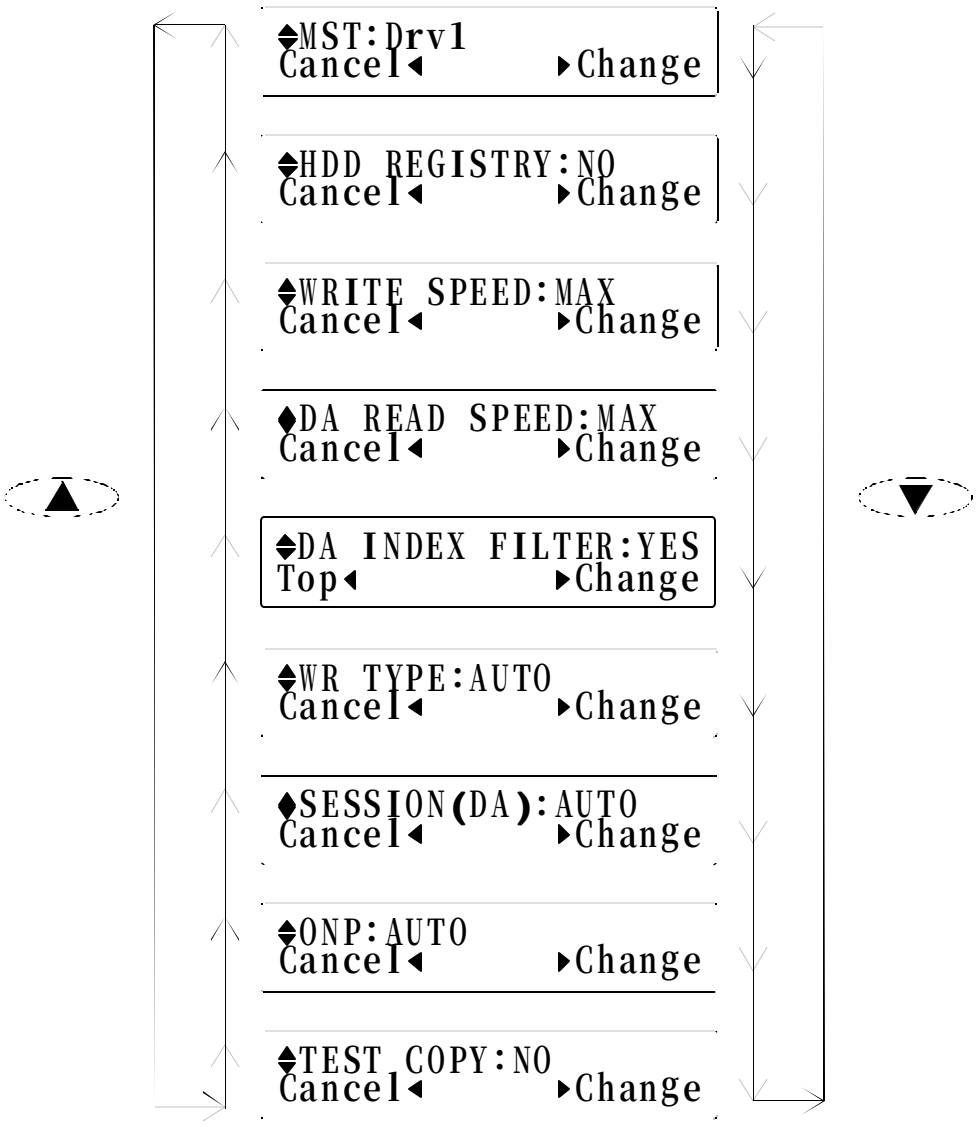
Process modes for copying and verifying in the DSR-8880 are set, i.e., changing the master device (When a hard drive or an external master read drive is loaded), changing the copying or verifying speed, etc.

Going to "process mode setting"

Press the right cursor button labeled ▶MENU on the operation panel once (See "Introduction 5). The process mode-setting screen (the following) will appear.

To change the setting, press the up/down cursor button (▲▼) on the operation panel (See "Introduction 6).

Setting flowchart:



HDD REGISTRY will be appeared only when the optional hard drive has been installed.

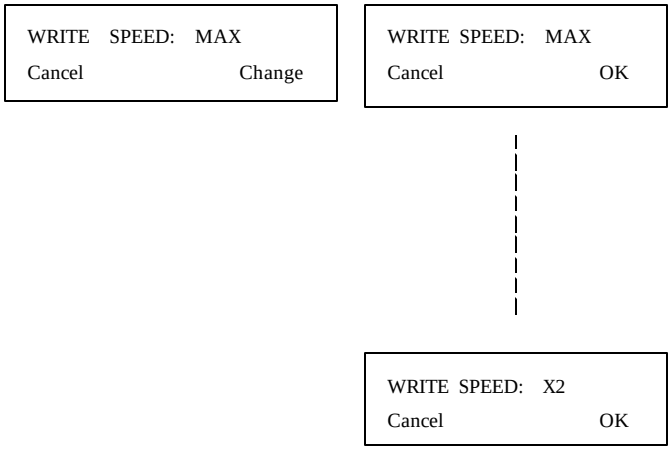
Exiting from “process mode setting”

To go back to the main screen, press the left cursor button labeled on the operation panel (Cancel)◀.

Setting examples

The following is an example of changing a process mode setting.

Ex.) Changing the process speed for copying and verifying



Set the process speed by selecting "WRITE SPEED".

In this example, the "process speed" will be changed from the default "MAX" (12x/16x speed) to "X 2"(2X speed). Max speed is determined by the model of the recorder installed.
When the main screen is shown, press the right cursor button to go to the process mode setting screen.
Press the up/down cursor switch to select "WRITE SPEED".

MAX is the current set value.

Press the right cursor button (Change) once to go to the setting change screen.

Press the up/down cursor button to change the set value.

Press the right cursor button (OK) once. The set value, "X 2" will be saved.

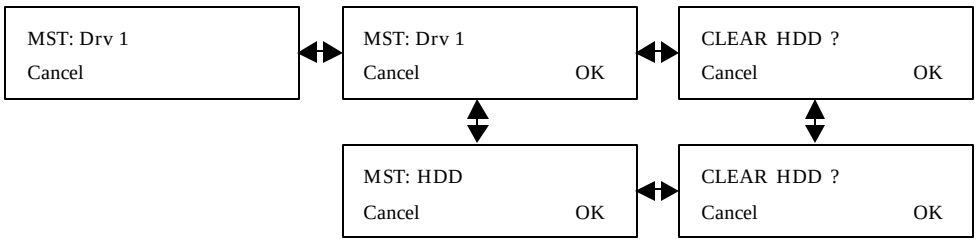
X2 is the changed set value.

Press the left cursor button (Cancel) once. The main screen will appear.

If the process mode is changed, the history up to the last process (such as the number of processed discs) will be cleared. Other settings can be changed after this operation. The setting after the change will be saved, even if the device is turned off.

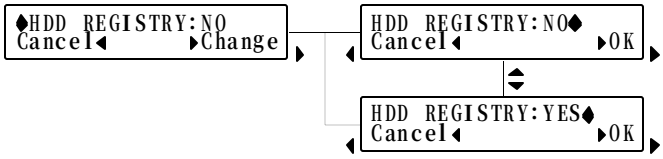
Descriptions of process mode settings

1) MST (Master Read Drive)



In this setting, the drive used as the master drive is selected for copying or verifying.
The interface is SCSI and the SCSI (MASTER) connector on the rear panel of the DSR-8880 is used for connecting it to the external device.

2) HDD REGISTRY



After the optional hard drive is installed, the setting will be shown to select whether the master data is registered in the hard drive or not. If the setting is changed when registering the master data, the message "CLEAR HDD?" will be shown. If "OK" is selected, the registered master data will be cleared. If "YES" is selected for the registration, the master data will be registered in the hard drive in the following manner:

1. If the copying or verifying process is started, the master data will be registered in the hard drive and the copying or verifying process is executed simultaneously. After the process is completed properly, the master disc will be automatically ejected.
2. If the process is started without selecting the copying and verifying processes (the copying and verifying LED's are off), the master data will be registered in the hard drive.
   After the process is completed properly, the master disc will be automatically ejected.

The hard drive registration will not be cleared unless the following are performed.

- The master format is changed.
- The master drive setting in 1) is changed.
- The setting of "HDD REGISTRY" described in 2) is changed to "NO".

3) WRITE SPEED

The process speed is selected. The maximum speed setting might not function in some drive specifications or formats. In this case, the writing speed will be reduced automatically regardless of the setting. In normal case, select the MAX setting.
If a slow speed is specifically required, set the desirable speed.

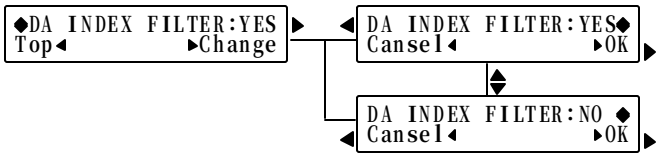
This process speed is set for **except the CD-DA format**. Refer to "DA READ SPEED" (pg. 68) to select the process speed for the CD-DA format.

4) DA READ SPEED

The speed for reading + writing the CD-DA format is selected. The specific speed setting might not function due to the drive specifications. In this case, the reading + writing speed will be controlled automatically regardless of the setting. In normal case, select the MAX setting. Generally, the slower speed reduces the error rate in the CD-DA data.
If you want to select the slow speed specifically set the desirable speed.

DA READ SPEED	DA WRITE SPEED
MAX	12x/16x
8x	4x
4x	4x

5) DA INDEX FILTER

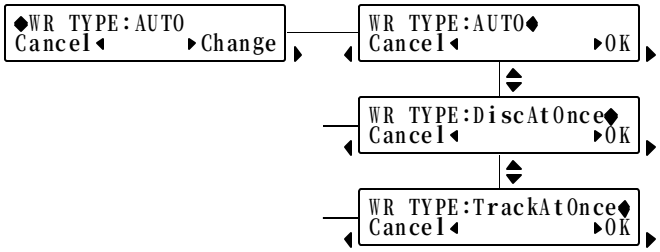


The index filter is selected. This function is to delete a digital noise while the master CD-DA is processed. Select "YES" when you process the master CD-DA which has digital noises in the beginning of track; the index filter enables to analyze and delete noises while processing simultaneously. The data analysis is executed for two seconds per track. It ends as it acknowledges the beginning of song.

Select "NO" for processing the track which does not have any digital noise in the beginning; otherwise the beginning of song might be changed.

Changing Process Mode

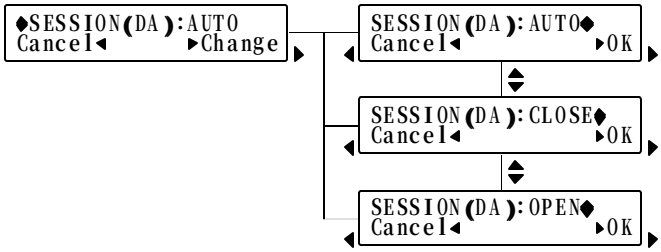
6) WR TYPE (Write Type)



The writing type can be converted regardless of the master format type.
If the master format type is unknown, select AUTO. If the format of the master CD is analyzed and the "Write Type" is acknowledged, the process will be executed as the type of the master CD. If it is not acknowledged, the process will be executed as the "DISC AT ONCE" type.
If the setting is changed while registering the master data in the hard drive (option), the master data will be cleared.

If AUTO is selected for the PLEXTOR read drive, the process will be executed as the "DISC AT ONCE" type. To convert the ISO9660 multi session (TRACK AT ONCE) to the single session (DISC AT ONCE), select "ISO Conv." For the format setting to execute this process.

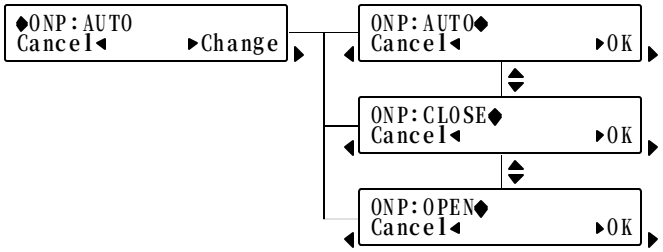
7) SESSION (DA)



If session (DA) is selected to (OPEN), it is possible to add additional sessions to the CD using your pre-mastering software package. If Session(DA) is set to (CLOSE) then the CD will be closed and no further sessions can be added. If you do not know if the last session of the master data can be added or not, select AUTO. If the last session information of the master CD is analyzed and acknowledged, the process will be executed as the master CD type. If it is not acknowledged, the process will be executed in the "CLOSE" mode. Unless the WR TYPE has been set to "DISC AT ONCE", the setting will not be shown.

If AUTO is selected for the PLEXTOR read drive, the process will be executed in the "CLOSE" mode

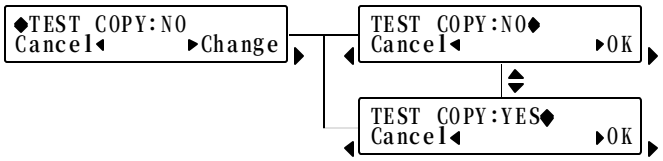
ONP (Open Next Program Area)



If the write type is "TRACK AT ONCE", Addition of another data session is possible when it set to (OPEN). If this setting is set to (CLOSE) the last track cannot be selected. If you do not know if the last track of the master data can be added or not, select AUTO. If the last track information of the master CD is analyzed and acknowledged, the process will be executed as the master CD type. If it is not acknowledged, the process will be executed in the "CLOSE" mode. Unless the WR TYPE has been set to "TRACK AT ONCE", the setting will not be shown.

If AUTO is selected for the PLEXTOR read drive, the process will be executed in the "CLOSE" mode.

TEST COPY



If "YES" is selected, the data will be copied but not written in the CD-R. If the master disc is not read well (e.g., because of a flaw) and you doubt if the data is properly processed (such as copying), use this function as a test.

The CD-R will remain blank, even if the data is copied in accordance with the "YES" setting and the process is completed properly.

Changing system mode

System mode

You do not have to change the system mode in the case of normal stand-alone operations. It should be changed if a specific format or password is set, hard drive is checked, system version is upgraded, etc.

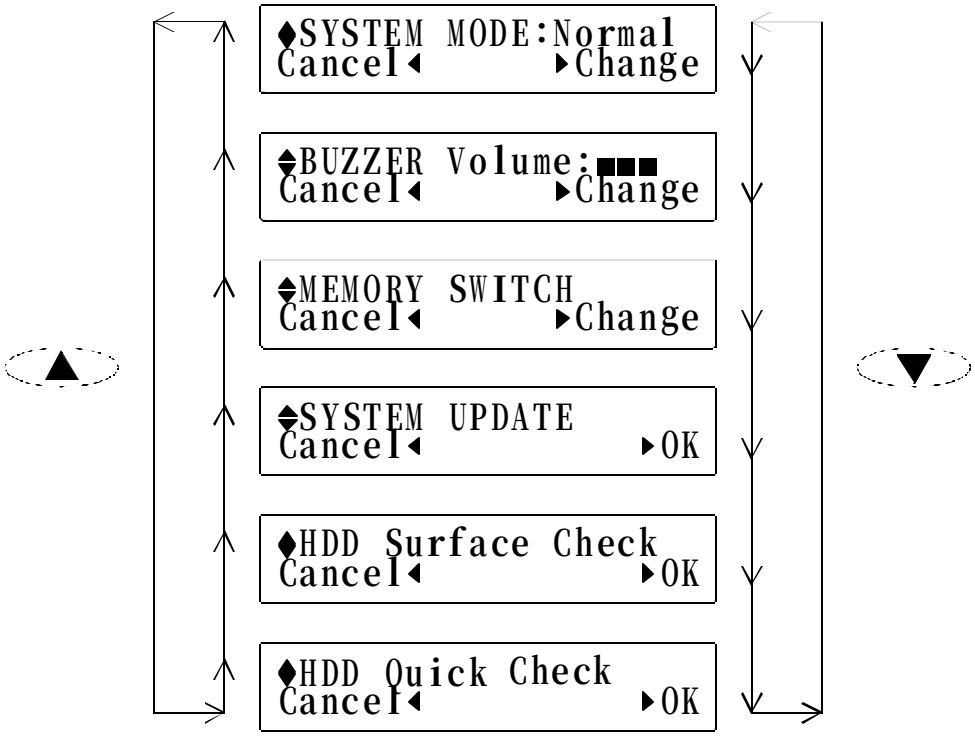
Going to "system mode setting"

1. Keep pressing the left cursor button on the operation panel for about one second when the Main screen of the DSR-8880 (See page 16) is shown. The following screen will appear. If you stop pressing the button, the previous screen will appear again.

2. Keep pressing the left cursor button and press the right cursor button simultaneously. The System Setting screen will appear.

3. To change the setting, press the up/down cursor button ( ) on the operation panel. Refer to "Descriptions of system mode settings" (page 54) for details.

Setting flowchart:

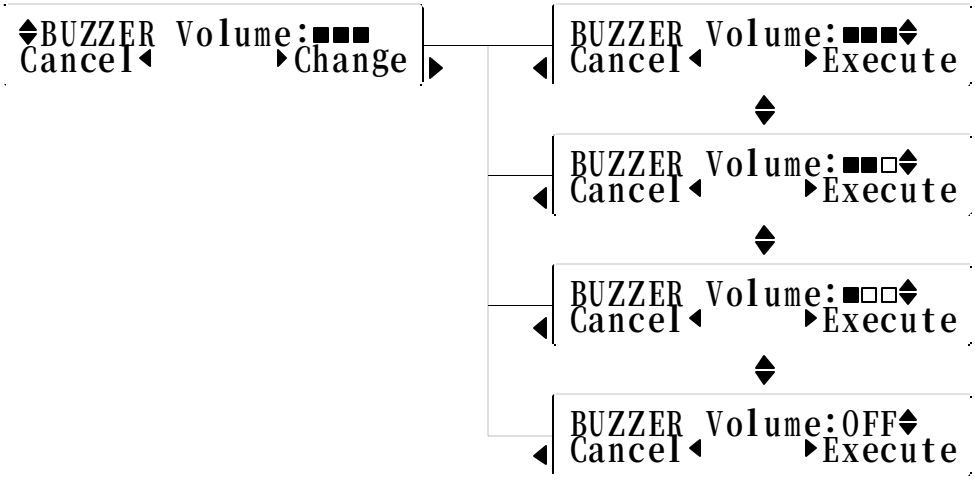


Setting example

Change the system mode setting according to the following example.
For other settings, refer to "Descriptions of system mode settings" (page 54) for details.

Ex) Setting the beeps of the DSR-8880

The volume of the beeps is changed on the screen showing "BUZZER Volume".



Turn down the beep volume by one grade. Maximum has been selected as a default setting.

1. Keep pressing the left cursor button on the Main screen. When the next screen appears, press the right cursor button to move to the System Mode Setting screen. Refer to "Going to system mode setting" (page 52) for details.
2. Press the up/down cursor button. "BUZZER Volume" will be shown.

■■■ Is the current setting (maximum)?

3. Changing the right cursor button (Change) once to change the setting.

4. Press the up/down cursor button. The set value will be changed.

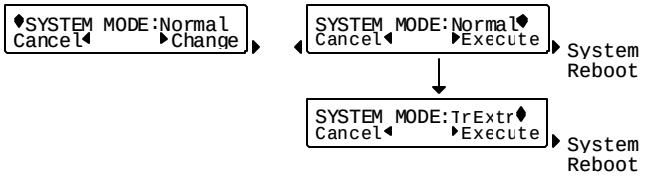
5. Press the right cursor button (Execute) once on the above screen. ■■□ (Turning down the volume by one grade) will be stored. The DSR-8880 will be started again automatically.

> If the system mode is changed, the DSR-8880 will be started again and the process history (such as the number of the processed discs) will be cleared.
> The setting will not be changed, even if the DSR-8880 is turned off.

Refer to "Descriptions of the system mode settings" (page 54) for other settings.

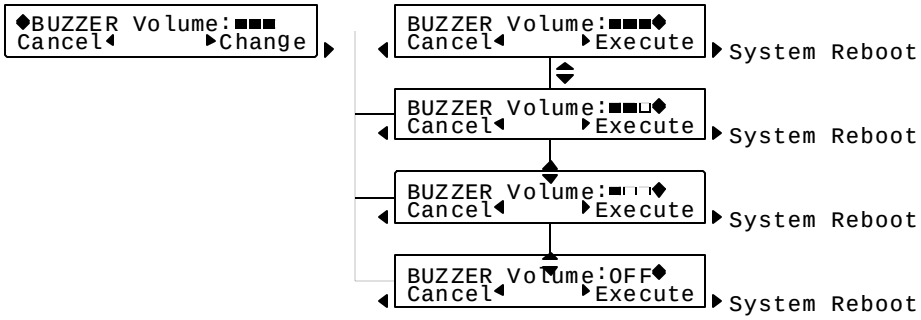
Descriptions of the system mode settings

1) SYSTEM MODE



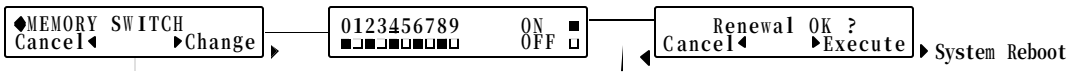
The action mode of the DSR-8880 (referred to as DSR later) is selected. When the system is started, it is in the NORMAL mode.
NORMAL : Stand-alone action mode
TrExtr : Track Extraction mode

2) BUZZER Volume



The beep volume of the DSR system is changed.

3) MEMORY SWITCH



It is used to select whether the specific functions of the DSR are used or not.

0: The automatic format analysis (AUTO format) is selected. (Default = ON)

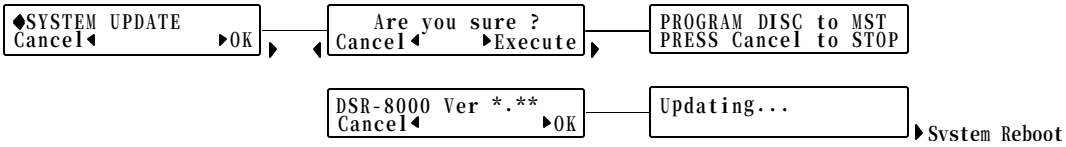
1:Not designated. (Default = OFF)

2-9:Not designated.

How to change the setting:

0-9 shown on the Memory Switch Change screen (the center in the above screens) are the switch numbers. If the number is underlined, that means that the number has been selected. To change the selection, press the right and left cursor button. To turn the memory switch on/off, use the up/down cursor button. If the underline of the number moves beyond 1-9, "Renewal OK?" will be shown. To change the switch setting, select "Execute" (right cursor button). If "Cancel" (left cursor button) is selected, the switch setting will not be saved.

4) SYSTEM UPDATE



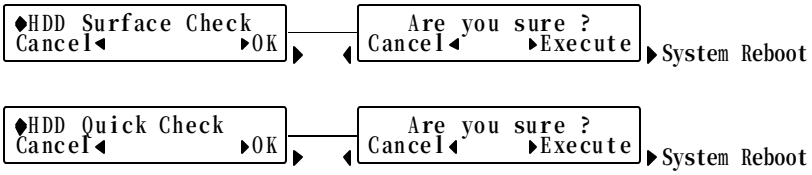
The DSR-8880 firmware is updated. A firmware disc for updating is needed.

If the left cursor button (Cancel) is pressed on the screen showing the firmware version, the firmware will not be updated and the DSR-8880 will be started again.

Caution

When the firmware is updated, all the data on the internal hard disk drive will be lost. If you have information on the hard disk drive you do not want to loose, please make a copy BEFORE updating the firmware.

5) HDD FORMAT



HDD FORMAT is shown if the optional hard drive has been installed.

The hard drive is initialized and the surface is checked. In the surface check, the reading and writing processes are executed on the hard drive to check if the drive can be used.

If an error is found and the drive is found to be restored by using the self restoration function, the restoration process will be executed.

The "Surface Check" function is to check the HDD entirely (reading & writing).

The "Quick Check " function is to check the HDD simply (reading only).

*****In case the new HDD is installed, the "Quick Check" function may be automatically processed after the firmware registration.

Section 4

Trouble Shooting

Trouble Shooting……57

Error Message……58

System……58

Read Drive……..58

Write Drive……58

Hard Drive……..58

Error Code……...59

Trouble Shooting

Symptom	Checking Item
Power is not turned to ON.	* Check if the cable is connected to the unit and the respective inlet correctly. * Check if the power is supplied by connecting the cable to the inlet of other equipment. * Check if the power switch is set to the ON position completely.
The unit does not work as expected.	* Check if the disc is correctly inserted in the drive. * Check if the disc complies with the specifications. * Check if the disc is accumulated with dust or the like, or if any condensing is observed on the surface. * Check if the unit is moved from low temperature environment to high temperature environment in a short time. The lens of the optical head may have caused condensing. Leave the unit with the power turned on for a while, then restart it.
VMI™ card (option) does not work properly.	* Check if the VMI™ card (s) is (are) correctly connected. Refer to page * Check if the SCSI cable is correctly connected.

Error Message

System

? NO PROGRAM	There is not firmware. Please loading the program disc
NO SYSTEM DATA	It occurs, if the system can not read system data. It occurs, if the system is unstable. If the error occurs again after turning on the power, please contact our Service Center.
SEND PROGRAM	It occurs, if an error occurs while transferring firmware. It occurs, if the system is unstable. If the error occurs again after turning on the power, please contact our Service Center.
NO PROGRAM DISC	It occurs, if the disc that is loaded is not firmware disc.
SUM CHECK ERROR	It occurs, if the loaded firmware does not match with SUM.

Read Drive

SCSI ERROR	It is supposed to be a fault during SCSI execution. If the error occurs again after turning on the power, please contact our Service Center.
NON MASTER	It occurs, if master drive is not recognized. Check if the SCSI cable is correctly connected. If the error occurs again after turning on the power, please contact our Service Center.
UNKNOWN FORMAT	It occurs, if it is impossible to analyze the master disc. The disc format or the disc is supposed to be defective.
DRIVE ERROR	The master drive cannot work. It occurs, if the drive is out of control during the Lead-in process. If the error occurs again after turning on the power, please contact our Service Center.

Write Drive

VERIFY DATA	It occurs, if the copy data is different from the Master data.
NOT READY	It occurs, if the master disc or the target disc has not been inserted at the beginning of the process, or if the process is started immediately after inserting the disc. Please note that the CD-R drive detects the disc 10 - 20 seconds after inserting the disc. If the error occurs again after turning on the power, please contact our Service Center.
USER STOP	It occurs, if the user stops the process.
TIME OUT	Writing was stopped, because TIME OUT occurs. It occurs, if any drive delays the writing process compared to other drives.

Error Message

Hard Drive

HDD FULL	There is no copying area in the Hard Drive.

Error Code

In addition to Error Message, errors are possibly indicated as error code by each drive.
Please check these codes with the "Appendix B: Error Code List".
Form of indicator is below.

```
Mst:ERROR
SCSI ERR ##&&
```

```
Drv*:ERROR
SCSI ERR ##&&
```

* Drive number
ASC (Additional Sense Code)
&& ASCQ (Additional Sense Code Qualifier)

Ex.1: In case, master data read failed

```
Mst:ERROR
SCSI ERR 1105
```

11 ASC (Additional Sense Code)
05 ASCQ (Additional Sense Code Qualifier)

Ex2: In case, writing was stopped for "Buffer under run" in Drive A.

```
Drv1:ERROR
SCSI ERR 0C07
```

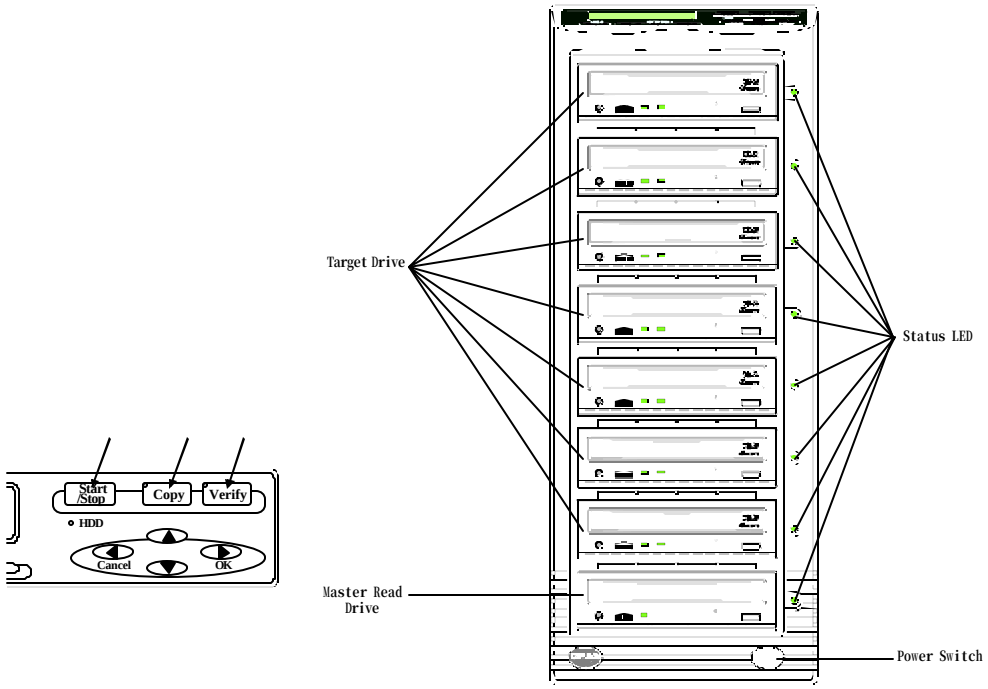
0C ASC (Additional Sense Code)
07 ASCQ (Additional Sense Code Qualifier)

Appendix A

Appendix A: Quick Reference

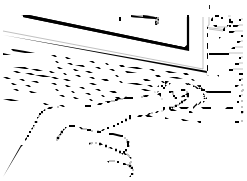
Copy from CD to CD (On the Fly)

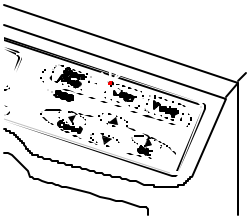
You can operate with following three switches on DSR-8880.



Copy is selected as a default setting.

1. Turn on the power.

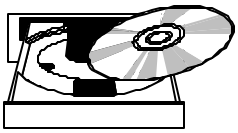




2. "Copy LED" is lit.

3. The following two messages are scrolled in turn.

FMT:AUTO◆ ▸MENU	FMT:AUTO◆ Press start to COPY

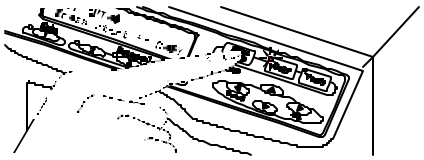


4. Insert a master disc into the master read drive and blank discs into the target drives.

5. Please wait until all status LED turn on.

6. DSR-8880 will start copying with pressing "Start/Stop switch"

7. DSR-8880 starts copying, showing the following message.



```
Box1:***%  Box2:Non
Box3:Non   Box4:Non***
```

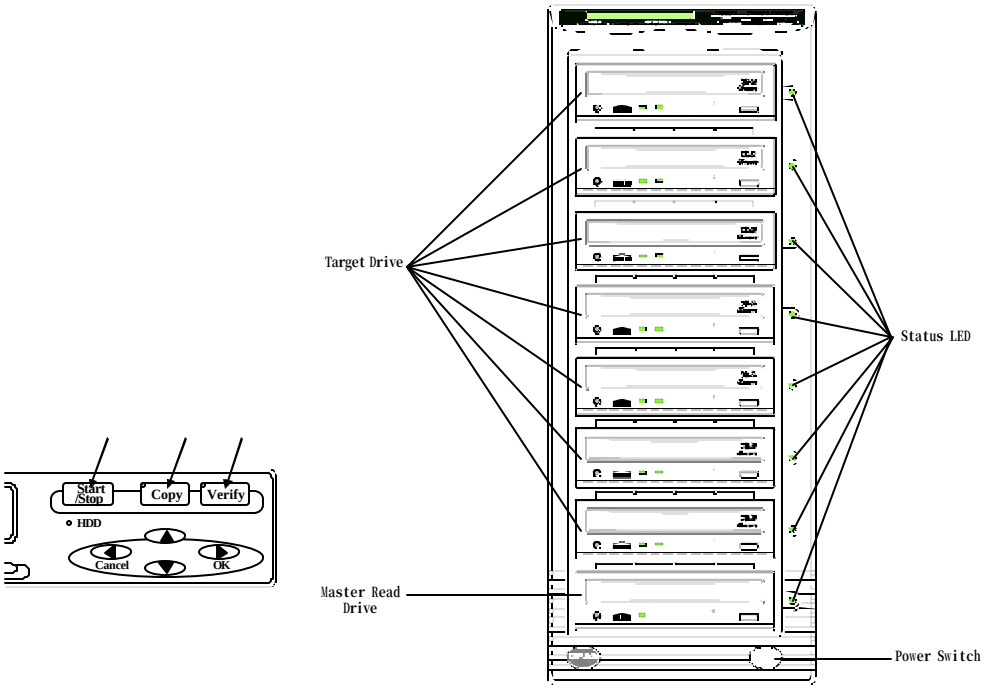
Percentage of the master capacity currently copied.

8. When the copy finishes successfully, status LED turns off, and the copied (target) disc is automatically ejected.

Caution : If you press "Start/Stop switch " before all status LED turn on, the drive which status LED turns off is not disabled.

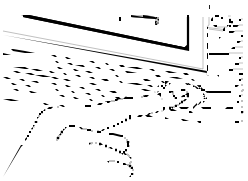
Verify from CD to CD (On the Fly)

You can operate with following three switches on DSR-8880.



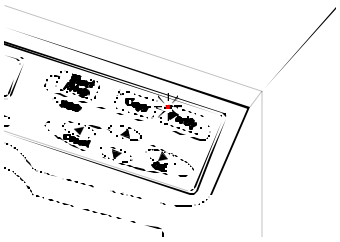
Copy is selected as a default setting.

1. Turn on the power.



2. "Copy LED" is lit.

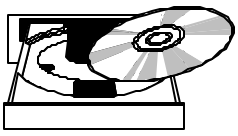
3. Deselect the Copy to press the Copy switch.
   (Turn off the "Copy LED.)



4. Select the Verify to press the Verify switch.
   (Turn on the "Verify LED ".)

5. The following two messages are scrolled in turn.

FMT:AUTO◆ ▸MENU	FMT:AUTO◆ Press start to VRFY

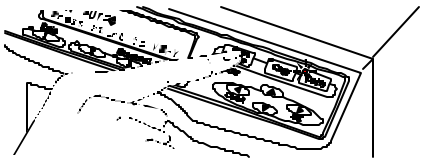


6. Insert a master disc into the master read drive and target discs into the target drives.

7. Please wait until all status LED turn on.

8. DSR-8880 will start verifying with pressing "Start/Stop switch "

9. DSR-8880 starts verifying, showing the following message.



```
Box1:***%  Box2:Non
Box3:Non   Box4:Non
```

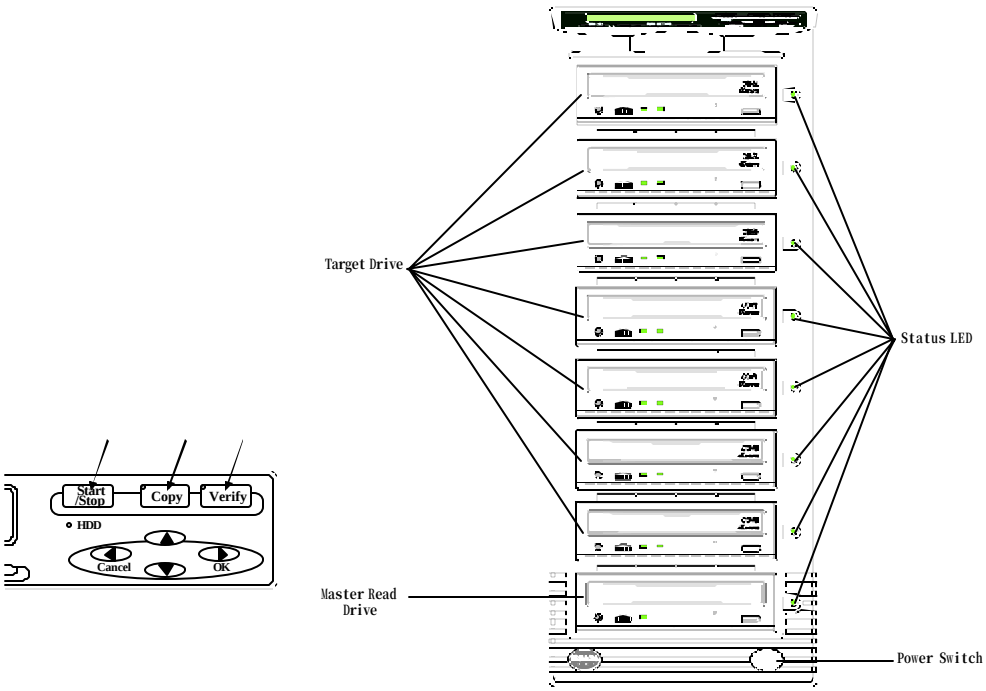
*** Percentage of the master capacity currently verified.

10. When the verify finishes successfully, status LED turns off, and the copied (target) disc is automatically ejected.

Caution : If you press "Start/Stop switch" before all status LED turn on, the drive which status LED turn off is not disabled.

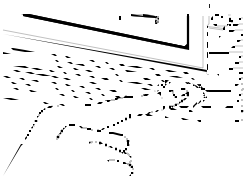
Copy +Verify (C+V) from CD to CD (On the Fly)

You can operate with following three switches on DSR-8880.

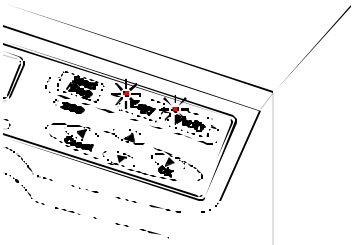


Copy is selected as a default setting.

1. Turn on the power.



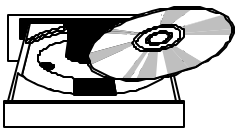
2. "Copy LED" is lit.



3. Select the Verify to press the Verify switch.
   (Turn on the "Verify LED".)

4. The following two messages are scrolled in turn.

FMT:AUTO◆ ▸MENU	FMT:AUTO◆ Press start to C+V



5. Insert a master disc into the master read drive and blank discs into the target drives.

6. Please wait until all status LED turn on.

7. DSR-8880 will start copying with pressing “Start/Stop switch ”, and then copy finishes successfully, verify is started automatically.

8. DSR-8880 starts C+V, showing the following message

```
Box1:***%  Box2:Non
Box3:Non   Box4:Non
```

*** Percentage of the master capacity currently copied or verified

9. When the verify finishes successfully, status LED turns off, and the copied (target) disc is automatically ejected.

Caution : If you press “Start/Stop switch ” before all status LED turn on, the drive which status LED turn off is not disabled.

Format setting

DSR-8880 can recognize most of CD-formats automatically with format setting "AUTO" expect CD-EXTRA (Enhanced CD).

"Auto" is selected as default setting.

Supported = YES Not supported = NO

Format Setting	Format Type	COPY	VERIFY
AUTO	CD-ROM(mode1,mode2)	Yes	Yes
	CD-DA	Yes	No
	CD-ROM XA(form1,form2)	Yes	No
	CD-I(form1,form2)	Yes	No
	MIXED	Yes	No
	Multisession	Yes	Yes
CD-EXTRA	CD-EXTRA (Enhanced CD)	Yes	No

Additional Function

ISO Conv: Convert ISO9660 Multi-Session (Track at Once) into Single-Session (Disc at Once)

Format Setting	Format Type	COPY	VERIFY
ISO Conv.	ISO9660 Multisession	Yes	Yes

Caution: A wrong format setting may cause invalid copy and/or verification.

Appendix B

Appendix B: Error Code List

Read Drive

ASC	ASCQ	Description
00	00	NO ADDITIONAL SENSE INFORMATION
00	14	AUDIO PLAY OPERATION STOPPED DUE TO ERROR
02	00	NO SEEK COMPLETE
02	80	SERVO SEEK ERROR
02	81	SYNC ERROR
02	82	HEADER ERROR
02	83	TARGET NOT MET
04	00	LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE
04	01	LOGICAL UNIT IS IN PROGRESS OF BECOMING READY (TABLE-OF-CONTENTS READ IN PROGRESS)
08	00	LOGICAL UNIT COMMUNICATION FAILURE
09	01	TRACKING SERVO FAILURE
09	02	FOCUS SERVO FAILURE
09	03	SPINDLE SERVO FAILURE
11	05	L-EC UNCORRECTABLE ERROR (L-EC CODES PRESENT AND L-EC ON)
11	06	CIRC UNRECOVERED ERROR (L-EC UNAVAILABLE OR OFF)
18	03	RECOVERED DATA WITH CIRC
18	04	RECOVERED DATA WITH L-EC
20	00	INVALID COMMAND OPERATION CODE
21	00	LOGICAL BLOCK ADDRESS OUT OF RANGE
24	00	INVALID FIELD IN CDB
25	00	LOGICAL UNIT NOT SUPPORTED
26	00	INVALID FIELD IN PARAMETER LIST
28	00	NOT READY TO READY TRANSITION
29	00	POWER ON, RESET OR BUS DEVICE RESET OCCURRED
2A	01	MODE PARAMETER CHANGED
2C	00	COMMAND SEQUENCE ERROR
39	00	SAVING PARAMETERS NOT SUPPORTED
3A	00	MEDIUM NOT PRESENT
40	00	DIAGNOSTIC FAILURE ON COMPONENT 0 (INTERNAL BUS FAILURE)
44	00	INTERNAL TARGET FAILURE
43	00	MESSAGE ERROR
45	00	SELECT/RESELECT FAILURE
47	00	SCSI PARITY ERROR
48	00	INITIATOR DETECTED ERROR MESSAGE RECEIVED
49	00	INVALID MESSAGE ERROR
4E	00	OVERLAPPED COMMAND ATTEMPTED
53	00	MEDIA LOAD/EJECT FAILED
53	02	MEDIUM REMOVAL PREVENT
57	00	UNABLE TO RECOVER TABLE-OF-CONTENTS
5A	01	OPERATOR MEDIUM REMOVAL REQUEST
63	00	END OF USER AREA ENCOUNTERED ON THIS TRACK
64	00	ILLEGAL MODE FOR THIS TRACK
81	00	LOGICAL UNIT IS RESERVED
85	00	AUDIO ADDRESS NOT VALID
B6	00	MEDIA LOAD MECHANISM FAILED
B9	00	AUDIO PLAY OPERATION ABORTED
BF	00	BUFFER OVERFLOW

Write Drive

ASC	ASCQ	Description
00	00	NO ADDITIONAL SENSE INFORMATION
00	06	I/O PROCESS TERMINATED
00	11	AUDIO PLAY OPERATION IN PROGRESS
00	17	CLEANING REQUESTED
02	00	NO SEEK COMPLETE
04	00	LOGICAL UNIT NOT READY, CAUSE NOT REPORTABLE
04	01	LOGICAL UNIT IS IN PROCESS OF BECOMING READY
04	02	LOGICAL UNIT NOT READY, INITIALIZING CMD. REQUIRED
04	03	LOGICAL UNIT NOT READY, MANUAL INTERVENTION REQUIRED
04	04	LOGICAL UNIT NOT READY, FORMAT IN PROGRESS
04	07	LOGICAL UNIT NOT READY, OPERATION IN PROGRESS
04	08	LOGICAL UNIT NOT READY, LONG WRITE IN PROGRESS
05	00	LOGICAL UNIT DOES NOT RESPOND TO SELECTION
06	00	NO REFERENCE POSITION FOUND
07	00	MULTIPLE PERIPHERAL DEVICES SELECTED
08	00	LOGICAL UNIT COMMUNICATION FAILURE
08	01	LOGICAL UNIT COMMUNICATION TIME-OUT
08	02	LOGICAL UNIT COMMUNICATION PARITY ERROR
09	00	TRACK FOLLOWING ERROR
09	01	TRACKING SERVO FAILURE
09	02	FOCUS SERVO FAILURE
09	03	SPINDLE SERVO FAILURE
09	04	HEAD SELECT FAULT
0A	00	ERROR LOG OVERFLOW
0B	00	WARNING
0B	01	WARNING - SPECIFIED TEMPERATURE EXCEEDED
0B	02	WARNING - ENCLOSURE DEGRADED
0C	00	WRITE ERROR
0C	07	WRITE ERROR - RECOVERY NEEDED
0C	08	WRITE ERROR - RECOVERY FAILED
0C	09	WRITE ERROR - LOSS OF STREAMING
0C	0A	WRITE ERROR - PADDING BLOCKS ADDED
11	00	UNRECOVERED READ ERROR
11	01	READ RETRIES EXHAUSTED
11	02	ERROR TOO LONG TO CORRECT
11	05	L-EC UNCORRECTABLE ERROR
11	06	CIRC UNRECOVERED ERROR
11	0F	ERROR READING UPC/EAN NUMBER
11	10	ERROR READING ISRC NUMBER
11	11	READ ERROR - LOSS OF STREAMING
15	00	RANDOM POSITIONING ERROR
15	01	MECHANICAL POSITIONING ERROR
15	02	POSITIONING ERROR DETECTED BY READ OF MEDIUM
17	00	RECOVERED DATA WITH NO ERROR CORRECTION APPLIED
17	01	RECOVERED DATA WITH RETRIES
17	02	RECOVERED DATA WITH POSITIVE HEAD OFFSET
17	03	RECOVERED DATA WITH NEGATIVE HEAD OFFSET
17	04	RECOVERED DATA WITH RETRIES AND/OR CIRC APPLIED
17	05	RECOVERED DATA USING PREVIOUS SECTOR ID
17	07	RECOVERED DATA WITHOUT ECC – RECOMMEND REASSIGNMENT
17	08	RECOVERED DATA WITHOUT ECC - RECOMMEND REWRITE
17	09	RECOVERED DATA WITHOUT ECC - DATA REWRITTEN

ASC	ASCQ	Description
18	00	RECOVERED DATA WITH ERROR CORRECTION APPLIED
18	01	RECOVERED DATA WITH ERROR CORR. & RETRIES APPLIED
18	02	RECOVERED DATA - DATA AUTO-REALLOCATED
18	03	RECOVERED DATA WITH CIRC
18	04	RECOVERED DATA WITH L-EC
18	05	RECOVERED DATA - RECOMMEND REASSIGNMENT
18	06	RECOVERED DATA - RECOMMEND REWRITE
1A	00	PARAMETER LIST LENGTH ERROR
1B	00	SYNCHRONOUS DATA TRANSFER ERROR
1D	00	MISCOMPARE DURING VERIFY OPERATION
20	00	INVALID COMMAND OPERATION CODE
21	00	LOGICAL BLOCK ADDRESS OUT OF RANGE
21	01	INVALID ELEMENT ADDRESS
24	00	INVALID FIELD IN CDB
25	00	LOGICAL UNIT NOT SUPPORTED
26	00	INVALID FIELD IN PARAMETER LIST
26	01	PARAMETER NOT SUPPORTED
26	02	PARAMETER VALUE INVALID
26	03	THRESHOLD PARAMETERS NOT SUPPORTED
26	04	INVALID RELEASE OF ACTIVE PERSISTENT RESERVATION
27	00	WRITE PROTECTED
27	01	HARDWARE WRITE PROTECTED
27	02	LOGICAL UNIT SOFTWARE WRITE PROTECTED
27	03	ASSOCIATED WRITE PROTECT
27	04	PERSISTENT WRITE PROTECT
27	05	PERMANENT WRITE PROTECT
28	00	NOT READY TO READY CHANGE, MEDIUM MAY HAVE CHANGED
28	01	IMPORT OR EXPORT ELEMENT ACCESSED
29	00	POWER ON, RESET, OR BUS DEVICE RESET OCCURRED
29	01	POWER ON OCCURRED
29	02	SCSI BUS RESET OCCURRED
29	03	BUS DEVICE RESET FUNCTION OCCURRED
29	04	DEVICE INTERNAL RESET
2A	00	PARAMETERS CHANGED
2A	01	MODE PARAMETERS CHANGED
2A	02	LOG PARAMETERS CHANGED
2A	03	RESERVATIONS PREEMPTED
2B	00	COPY CANNOT EXECUTE SINCE HOST CANNOT DISCONNECT
2C	00	COMMAND SEQUENCE ERROR
2C	03	CURRENT PROGRAM AREA IS NOT EMPTY
2C	04	CURRENT PROGRAM AREA IS EMPTY
2F	00	COMMANDS CLEARED BY ANOTHER INITIATOR
30	00	INCOMPATIBLE MEDIUM INSTALLED
30	01	CANNOT READ MEDIUM - UNKNOWN FORMAT
30	02	CANNOT READ MEDIUM - INCOMPATIBLE FORMAT
30	03	CLEANING CARTRIDGE INSTALLED
30	04	CANNOT WRITE MEDIUM - UNKNOWN FORMAT
30	05	CANNOT WRITE MEDIUM - INCOMPATIBLE FORMAT
30	06	CANNOT FORMAT MEDIUM - INCOMPATIBLE MEDIUM
30	07	CLEANING FAILURE
30	08	CANNOT WRITE - APPLICATION CODE MISMATCH
30	09	CURRENT SESSION NOT FIXATED FOR APPEND

ASC	ASCQ	Description
31	00	MEDIUM FORMAT CORRUPTED
31	01	FORMAT COMMAND FAILED
34	00	ENCLOSURE FAILURE
35	00	ENCLOSURE SERVICES FAILURE
35	01	UNSUPPORTED ENCLOSURE FUNCTION
35	02	ENCLOSURE SERVICES UNAVAILABLE
35	03	ENCLOSURE SERVICES TRANSFER FAILURE
35	04	ENCLOSURE SERVICES TRANSFER REFUSED
37	00	ROUNDED PARAMETER
39	00	SAVING PARAMETERS NOT SUPPORTED
3A	00	MEDIUM NOT PRESENT
3A	01	MEDIUM NOT PRESENT - TRAY CLOSED
3A	02	MEDIUM NOT PRESENT - TRAY OPEN
3B	0D	MEDIUM DESTINATION ELEMENT FULL
3B	0E	MEDIUM SOURCE ELEMENT EMPTY
3B	0F	END OF MEDIUM REACHED
3B	11	MEDIUM MAGAZINE NOT ACCESSIBLE
3B	12	MEDIUM MAGAZINE REMOVED
3B	13	MEDIUM MAGAZINE INSERTED
3B	14	MEDIUM MAGAZINE LOCKED
3B	15	MEDIUM MAGAZINE UNLOCKED
3D	00	INVALID BITS IN IDENTIFY MESSAGE
3E	00	LOGICAL UNIT HAS NOT SELF-CONFIGURED YET
3E	01	LOGICAL UNIT FAILURE
3E	02	TIMEOUT ON LOGICAL UNIT
3F	00	TARGET OPERATING CONDITIONS HAVE CHANGED
3F	01	MICROCODE HAS BEEN CHANGED
3F	02	CHANGED OPERATING DEFINITION
3F	03	INQUIRY DATA HAS CHANGED
40	NN	DIAGNOSTIC FAILURE ON COMPONENT NN (80H-FFH)
43	00	MESSAGE ERROR
44	00	INTERNAL TARGET FAILURE
45	00	SELECT OR RESELECT FAILURE
46	00	UNSUCCESSFUL SOFT RESET
47	00	SCSI PARITY ERROR
48	00	INITIATOR DETECTED ERROR MESSAGE RECEIVED
49	00	INVALID MESSAGE ERROR
4A	00	COMMAND PHASE ERROR
4B	00	DATA PHASE ERROR
4C	00	LOGICAL UNIT FAILED SELF-CONFIGURATION
4D	NN	TAGGED OVERLAPPED COMMANDS (NN = QUEUE TAG)
4E	00	OVERLAPPED COMMANDS ATTEMPTED
51	00	ERASE FAILURE
53	00	MEDIA LOAD OR EJECT FAILED
53	02	MEDIUM REMOVAL PREVENTED
57	00	UNABLE TO RECOVER TABLE-OF-CONTENTS
5A	00	OPERATOR REQUEST OR STATE CHANGE INPUT
5A	01	OPERATOR MEDIUM REMOVAL REQUEST
5A	02	OPERATOR SELECTED WRITE PROTECT
5A	03	OPERATOR SELECTED WRITE PERMIT

ASC	ASCQ	Description
5B	00	LOG EXCEPTION
5B	01	THRESHOLD CONDITION MET
5B	02	LOG COUNTER AT MAXIMUM
5B	03	LOG LIST CODES EXHAUSTED
5D	00	FAILURE PREDICTION THRESHOLD EXCEEDED
5D	FF	FAILURE PREDICTION THRESHOLD EXCEEDED (FALSE)
5E	00	LOW POWER CONDITION ON
5E	01	IDLE CONDITION ACTIVATED BY TIMER
5E	02	STANDBY CONDITION ACTIVATED BY TIMER
5E	03	IDLE CONDITION ACTIVATED BY COMMAND
5E	04	STANDBY CONDITION ACTIVATED BY COMMAND
63	00	END OF USER AREA ENCOUNTERED ON THIS TRACK
63	01	PACKET DOES NOT FIT IN AVAILABLE SPACE
64	00	ILLEGAL MODE FOR THIS TRACK
64	01	INVALID PACKET SIZE
65	00	VOLTAGE FAULT
72	00	SESSION FIXATION ERROR
72	01	SESSION FIXATION ERROR WRITING LEAD-IN
72	02	SESSION FIXATION ERROR WRITING LEAD-OUT
72	03	SESSION FIXATION ERROR - INCOMPLETE TRACK IN SESSION
72	04	EMPTY OR PARTIALLY WRITTEN RESERVED TRACK
73	00	CD CONTROL ERROR
73	01	POWER CALIBRATION AREA ALMOST FULL
73	02	POWER CALIBRATION AREA IS FULL
73	03	POWER CALIBRATION AREA ERROR
73	04	PROGRAM MEMORY AREA UPDATE FAILURE
73	05	PROGRAM MEMORY AREA IS FULL

Appendix C

Installing a Slave and VMI™ card

The follow procedures apply if you already have an Inferno Master Tower and have ordered additional slave towers. If you purchased the Master and Slave towers together, you will only need to connect the units together using the external 50 pin cables. There will be no need to open up the Master tower.

Confirm that you received the following items:

- Slave tower
- VMI Card (for slave tower #2 only)
- Power Cable
- External 50 pin cable
- Installation instructions (this sheet)
- Ribbon cable and Back Plane Adapter

If any of these items are missing, please contact your distributor or Microboards Technical Support at 952-556-1614.

Please follow these steps to connect the Slave tower to your Inferno Master.

For Slave Tower #1

1) Remove the cover of the Master tower.
2) Inside, you will see a ribbon cable that connects all of the recorders together.
3) Follow this cable to the motherboard, mounted on the side of the Master tower.
4) Just below this connector on the motherboard, there will be an unused 50-pin connector. It is labeled WRITER 2.
5) Place one end of the ribbon cable that came with the slave tower into this connector. The connector is keyed, so it can only go on one way.
6) On the back of the Master tower, near the bottom, there will be four filler brackets.
7) Remove the top bracket.
8) Take out the Back Plane Adapter that came with your slave tower and connect the other end of the internal ribbon cable to the Adapter.
9) Mount the bracket in the top slot and secure it in place.
10) Once the bracket is installed and the Master cover replaced, connect the Slave tower to the Master tower using the external 50-pin cable.
    a. One end of the cable will connect to the IXT connector on the back of the Slave tower.
    b. The other end of the cable will connect to the connector on the back of the Master tower you just mounted.
11) Connect the power cable to the Slave tower and turn on power.
12) Turn on power to the master reader drive (if you have an external reader).
13) Turn on power to the Master tower.
14) The display will show FMT AUTO PRESS START TO COPY.
15) If this message is not displayed, press the Copy button. The LED will come on.
16) If you want to verify the data after the copy is complete, press the Verify button. The verify feature will only work with DATA master discs, not AUDIO.
17) Place the master disc in the reader drive.
18) Place blank discs in the drives of the Master and Slave tower. Wait for the green lights to the right of the drives to come on solid. The drives are now ready.

19) Press the Start button. This will start the copy process.
20) Once copying is complete, the discs will automatically be ejected. If you selected Copy and Verify, the discs will eject after the verify process is complete.
21) Remove the completed discs.
22) Repeat steps 18 through 21 to duplicate additional discs.

NOTE: Slave towers #2 and #3 do not apply if you are using 16x CD-R recorders.

For Slave Tower #2

Note: Slave #2 installation procedures assume you have already installed slave #1, as described on page 1 and 2.

1. Remove the cover of the Master tower and install the VMI card in the bottom VMI slot. (See Page 4 for installation instructions)
2. Once the VMI card is installed and the cover replaced, connect the Slave tower to the Master tower using the external 50-pin cable.
    a. One end of the cable will connect to the IXT connector on the back of the Slave tower.
    b. The other end of the cable will connect to the connector on the VMI card on the back of the Master tower.
3. Connect the power cable to the Slave tower and turn on power.
4. Turn on power to the other slave tower.
5. Turn on power to the master reader (if you have an external reader).
6. Turn on power to the Master tower.
7. The display will show FMT AUTO PRESS START TO COPY.
8. If this message is not displayed, press the Copy button. The LED will come on.
9. If you want to verify the data after the copy is complete, press the Verify button. The verify feature will only work with DATA master discs, not AUDIO.
10. Place the master disc in the reader drive.
11. Place blank discs in the drives of the Master and Slave towers. Wait for the green lights to the right of the drives to come on solid. The drives are now ready.
12. Press the Start button. This will start the copy process.
13. Once copying is complete, the discs will automatically be ejected. If you selected Copy and Verify, the discs will eject after the verify process is complete.
14. Remove the completed discs.
15. Repeat steps 11 through 14 to make additional copies.

For Slave Tower #3

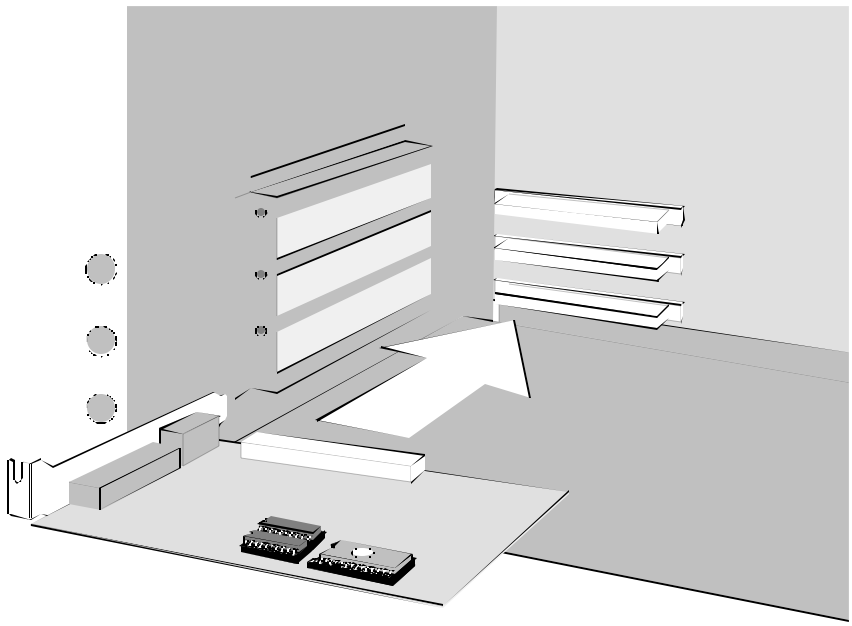
Note: Slave #3 installation procedures assumes you already have installed Slaves #1 and #2, as described above.

1. Remove the cover of the Master tower.
2. Inside, you will see the VMI card installed in the bottom VMI slot.
3. On the side of the card, you will see an unused 50-pin connector.
4. Place one end of the ribbon cable that came with the new slave tower into this connector. It is keyed, so it can only go in one way.
5. On the back of the Master tower, near the bottom, there will be two filler brackets.
6. Remove the bracket just above the VMI card.
7. Take out the Back Plane Adapter that came with your slave tower and connect the other end of the internal ribbon cable to the Adapter.
8. Mount the bracket in the open slot and secure in place.
9. Once the bracket is installed and the Master cover replaced, connect the Slave tower to the Master tower using the external 50-pin cable.
    a. One end of the cable will connect to the IXT connector on the back of the Slave tower.
    b. The other end of the cable will connect to the connector on the back of the Master tower you just mounted.
10. Connect the power cable to the Slave tower and turn on power.
11. Turn on power to the other slave towers.
12. Turn on power to the master reader drive (if you have an external reader).
13. Turn on power to the Master tower.
14. The display will show FMT AUTO PRESS START TO COPY.
15. If this message is not displayed, press the Copy button. The LED will come on.
16. If you want to verify the data after the copy is complete, press the Verify button. The verify feature will only work with DATA master discs, not AUDIO.
17. Place the master disc in the reader drive.
18. Place blank discs in the drives of the Master and Slave towers. Wait for the green lights to the right of the drives to come on solid. The drives are now ready.
19. Press the Start button. This will start the copy process.
20. Once copying is complete, the discs will automatically be ejected. If you selected Copy and Verify, the discs will eject after the verify process is complete.
21. Remove the completed discs.
22. Repeat steps 18 through 21 to duplicate additional discs.

Installing VMI™ card

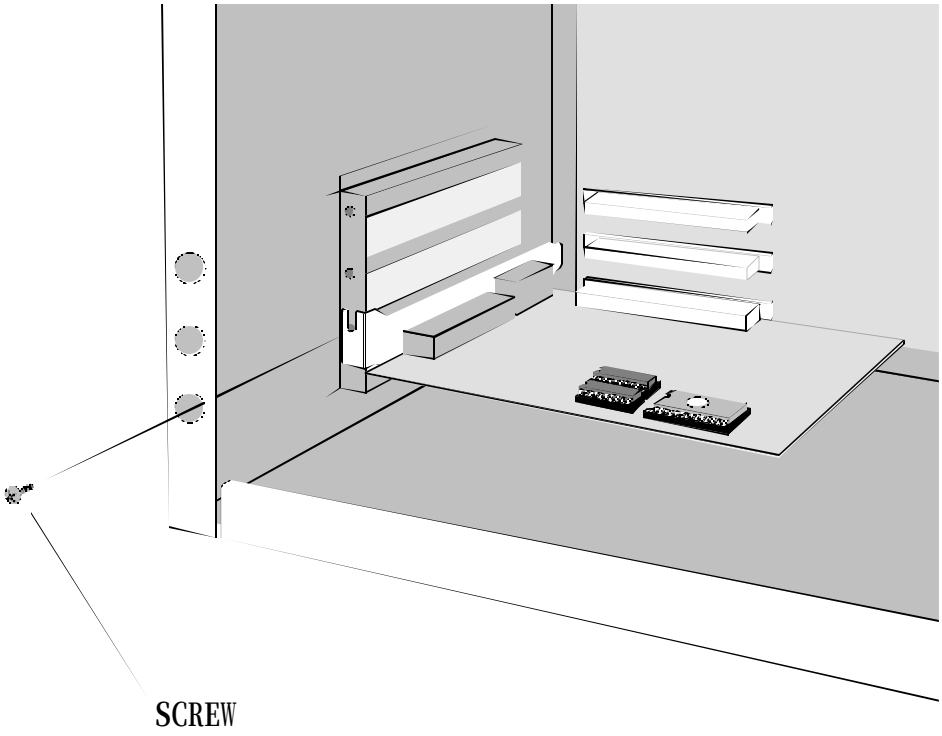
The following describes how to install the VMI card into the SCSI Master tower.

Remove the cover of the Inferno.
Remove the filler bracket for the bottom VMI slot.
Insert the VMI™ card into the Inferno as shown below.



If the tip of the sheet metal of the VMI™ card does not fit the hole on the Inferno, the VMI™ card will not be inserted properly. Please verify that the card is seated completely.

Make sure that the connector of the VMI ™ card is securely connected to the connector of the main board of the Inferno. Replace the screw to secure the board in place.



Replace the Inferno cover.